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# Eugenics Quarterly

Vol. 4 December, 1957 No. 4

**AMERICAN TRIRACIAL ISOLATES**
*Calvin L. Beale*

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*R. B. McConnell, M.D.*

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Vol. 4, No. 4, December, 1957 *Eugenics Quarterly*

# AMERICAN TRIRACIAL ISOLATES

## Their Status and Pertinence to Genetic Research

CALVIN L. BEALE
Agricultural Marketing Service
U. S. Department of Agriculture

IN THE 1950 CENSUS OF POPULATION, 50,000 American Indians are listed as living in states east of the Mississippi River. These people do not constitute the sole biological legacy of the aboriginal population once found in the East, of course. The remnants of many tribes were removed west of the Mississippi where they retain their tribal identity today. Nor is it uncommon to meet Easterners, thoroughly Caucasian in appearance and racial status, who boast of an Indian ancestor in the dim past. Other infusions of Indian blood were absorbed into the Negro population, and in this context may also be referred to with pride even if they afford no differential social status.

It is another class of people, however, that engages the attention of this article—a class more numerous than the Indians remaining in the East, more obscure than those in the West, less assured than the white man or Negro who regards his link of Indian descent as a touch of the heroic or romantic. The reference is to population groups of presumed triracial descent. Such isolates, bequeathed of intermingled Indian, white, and Negro ancestry, are as old as the nation itself and include not less than 77,000 persons. They live today in more than 100 counties of at least 17 Eastern States with settlements ranging in size from less than 50 persons to more than 20,000. Their existence has furnished material for the writings of local historians, folklorists, journalists, and novelists. Occasionally they have come to the attention of cultural anthropologists, sociologists, and—here and there—a geographer or educator. Attention to the triracial isolates by geneticists is largely confined to the last three years, however. It is the object of this discussion to describe the nature, location, and status of such Indian-white-Negro groups in Eastern States and to indicate the potential interest they hold for the field of human genetics.[1]

Although the precise origin of these groups is unknown in most instances, they seem to have formed through miscegenation between Indians, whites, and Negroes—slave or free—in the Colonial and early Federal periods. In places the offspring of such unions—many of which were illegitimate under the law—tended to marry among themselves. Within a generation or so this practice created a distinctly new racial element in society, living apart from other races. The forces tending to perpetuate such groups, and the strength of these forces, differed from place to place. Some groups subsequently dispersed or were assimilated during the 19th century. Some waxed in numbers; others waned. Most have persisted to the present day.

A majority of the triracial isolates originated in the Atlantic Coastal Plain. Their members were among the early pioneers in the Appalachian Plateaus and the Tennessee River Valley. Many left the South and moved to Northern States such as Ohio and

[1] Excluded from the category described are Indian tribes such as the Narragansett, Shinnecock, or Pamunkey, who absorbed both white and Negro blood, but retained their tribal identity and historical continuity.

Indiana, especially when restrictive measures were passed against free nonwhite people in Southern States during the 1830's. Thus it happens that the majority of the groups in the Trans-Appalachian States are related to others remaining in the South Atlantic States, although contact between them has lapsed.[2] None of the Northern groups seem to have colonized to the west, however.

The habitat of the mixed-blood people has been typically rural and geographically isolated. It is difficult to find such a settlement that is not associated with a swamp, a hollow, an inaccessible ridge, or the back country of a sandy flatwoods.[3] Many modern developments have helped reduce their isolation, but the isolation factor appears to have been of major importance in fostering and perpetuating the existence of the groups. Legal disputes over their racial status for purposes of school attendance, vital statistics registration, and other public matters have been numerous in Southern and Border States. In many groups educational attainment is low, income is inadequate, and reliance on public welfare programs is high. The incidence of illegitimacy, common-law marriage, petty larceny, and other socially disapproved practices has been frequent enough in certain localities to type the racial hybrids unfavorably in the public mind.

The racial status of the triracial people varies greatly, both as conceived in the minds of the people themselves and in the eyes of their white or Negro neighbors. Occasionally they occupy no more than a peculiar status among the Negro population. Some are regarded as a separate race, known either as Indian or by a local colloquial name. Where such is the case in Southern States, they often have their own segregated schools. In North Carolina, where they are most numerous, this practice extends to a separate State college. Other groups have achieved a measure of acceptance as white. It seems impossible to reconstruct for each community the circumstances that have determined its present status. Physical appearance and local traditions of origin may well be the most important.

It is well to make clear that the designation of these groups as triracial is often the conclusion of the investigator rather than a reflection of public opinion in the area concerned. In general all local informants will agree that the mixed population is partly white. (Blue eyes are commonly in evidence to validate this.) The white informant will insist that the mixed-blood people are partly Negro. Perhaps he will agree that they are partly Indian, perhaps not. The mixed-blood individual will usually insist—with vehemence, if necessary—that there is no Negro ancestry in his family (although he may not make this claim for all other families in the settlement) but that he is partly Indian. In a minority of communities unmistakable elements of Indian culture have been found. Presence of Negro ancestry may or may not be evident in some families from the occurrence of Negro hair forms or facial features. If evident, it tends to jeopardize claims of the group to non-Negro status. In sum, the groups described are with few exceptions considered only of white and Indian descent by their members but are regarded to be partly Negro by neighboring whites or Negroes.[4] Investigators frequently report the opinion of elderly persons that the average skin color of younger members of triracial isolates is lighter than that of earlier generations. This is not surprising in view of the fact that in most groups social rela-

[2] The most widespread surname among triracial groups has been documented by the writer and others in at least 36 counties of seven States. This is the name Goins and variations thereof.

[3] Settlements in Cumberland and Salem Counties, New Jersey, and Darke County, Ohio, are definite exceptions to this generalization.

[4] Some groups account for brunette skin coloration by traditions of descent from shipwrecked sailors of Portuguese, Spanish, or Moorish origin. Open acknowledgment of partial Negro descent has been made in a few groups through such means as affiliation with Negro church denominations.

tions with Negroes are discouraged and marriage to a Negro may result in ostracism. Relationships with white persons entail no such group displeasure.

Characterization of the triracial groups has its limitations, for they have emerged over a large geographic area under varying cultural conditions. With the usual footnote that there are exceptions, it can be said that they are a highly inbred class of people. It is this feature that most warrants the interest of students of human heredity.

The conditions of social and physical isolation—both imposed and voluntary—that fostered the emergence of mixed racial communities typically limited the choice of marriage partners within a relatively small number of surnames. Scattered data on marriage records attest to this. In Halifax County, North Carolina, between 1819 and 1860, 14 out of 29 male members of the leading family in a triracial group for whom marriage bonds were filed married females of the same name.[5] Of 35 marriages recorded for persons having the key surname of a mixed-racial community in Cumberland County, New Jersey, 9 were to spouses of the same surname and 17 to spouses of just one other surname.[6] In two families of the so-called "Guinea" community of Barbour and Taylor Counties, West Virginia, 102 of 112 marriages from 1856-1931 were to other persons in the racial isolate (about 11 surnames).[7]

Presumably as a result of such close marrying practices, genetically determined diseases and defects of unusual frequency have been reported among a number of the triracial isolates. The Jackson Whites of New Jersey and New York have long been noted for albinism and polydactylism.[8] Some of the Moors of Delaware suffer from microphthalmia[9], and hereditary deformities of the joints are reported among the West Virginia mixed bloods.[10]

The most notable evidences of inbreeding and hereditary difficulties have been reported for an isolate in Southern Maryland termed colloquially, "Wesorts." These people number about 4,000, including those in Washington, D. C., of whom at least one-fourth bear one surname, with a dozen names accounting for most of the rest of the population. An excellent measure of consanguinity in the group is provided by the fact that at least 90 per cent are Roman Catholic and ecclesiastical dispensation is required by that faith for marriages of known first or second cousins. In one major parish over a 104-year period, one-sixth of the marriages involving at least one Wesort required such a dispensation.[11]

The Indian tribes of Southern Maryland left the area before the end of the 17th century, but some Indians of mixed descent, or married to non-Indians, apparently remained. A triracial group evolved. Some knowledge of the original tribal clan structure was handed down, but the triracial people became a part of the larger society as a poor farming and laboring element regarded as colored.

Maintenance of racial separateness by the Maryland group is notable for it has been achieved without the assistance of institu-

[5] Data abstracted for family from State archives.

[6] *Cumberland County (New Jersey) Marriages*, compiled by H. Stanley Craig, 1934.

[7] "Mixed Bloods of the Upper Monongahela Valley, West Virginia," by William Harlen Gilbert, Jr., *Journal of the Washington Academy of Sciences*, Vol. 36, No. 1, January 15, 1946, pp. 1-13.

[8] "Surgical Problems in Hereditary Polydactylism and Syndactylism," by Spencer T. Snedecor and William K. Harryman, *Journal of the Medical Society of New Jersey*, Vol. XXXVII, No. 9, September 1940, pp. 443-449; "The Jackson Whites," by George Weller, *New Yorker*, Vol. 14, No. 31, September 17, 1938, pp. 29-39.

[9] *Delaware's Forgotten Folk*, by C. A. Weslager, University of Pennsylvania Press, Philadelphia, 1943, pp. 15-16.

[10] "Surviving Indian Groups of the Eastern United States," by William Harlen Gilbert, Jr., *The Smithsonian Report for 1948*, Government Printing Office, 1949, pp. 431.

[11] Unpublished data furnished to the writer.

tionalized aids such as separate schools and churches. By law the children have had to attend the regular colored schools. The people have attended the same churches as the general population but for a long period sat by custom in a particular section of the church.

The Wesorts are variable in appearance, including substantial variation within sibships. In general, they are somewhat darker than most of the other triracial peoples, and Negroid hair forms and facial features are not uncommon. However, some can pass as white and as a group they are distinctly lighter and more Caucasian than the neighboring Negro population, which itself has a substantial infusion of white ancestry. Some are pointed out as showing Indian characteristics.

In 1945 Gilbert, a cultural anthropologist, reported on the group and mentioned hereditary difficulties ascribed to it.[12] About three years ago, the existence of the group as a distinct breeding population and the widespread incidence of hereditary disease within it were first recognized by medical researchers through admissions to Washington hospitals. An intensive survey of the population was subsequently undertaken under the sponsorship of the National Institutes of Health and is still in progress. Results reported from this work to date by Witkop and associates indicate exceptionally high incidence of dentinogenesis imperfecta and albinism.[13] The former is a dental defect, transmitted as a simple dominant gene, which has various manifestations. It is an unsightly affliction and commonly results in the necessity for full artificial dentures in early adulthood. Many other hereditary conditions such as lop ears, polycystic kidneys, deaf mutism, glaucoma, syndactylism, polydactylism, congenital cataracts, convergent and divergent strabismus (nonparalytic eye squint), and hyperstatic bone disease have been found in the group and are being assessed. Two or more of the conditions often occur in the same person. "Due to several centuries of in-marriage, many genetically recessive traits have become manifest and many genetically dominant traits have become concentrated in certain lines of the clan."[14] Fertility is high notwithstanding the heavy load of inheritable handicaps. Cohorts of women of recently completed childbearing averaged better than five and one-half children per female beginning life in the cohort.

It may be that the intensity of inbreeding and notable constellation of hereditary effects evident among the Wesort group will be found to represent the extreme example of such conditions in Indian-white-Negro isolates.[15] In any event, it illustrates persuasively the attention which American triracial isolates merit from geneticists, and which, strangely, they have not previously received.

The statistics in Table 1 show the location, size, and racial status in the 1950 Population Census records of nearly all rural and small-town triracial groups known to be still in existence. Folk-names for the groups are also given where known. These data were compiled by the writer while employed by the Bureau of the Census, in order to appraise the results of the Bureau's efforts to introduce consistency into the classification of triracial isolates. In past censuses, variation in the listing of such groups had produced obvious inconsisten-

[12] "The Wesorts of Southern Maryland: An Outcasted Group," by William Harlen Gilbert, Jr., *Journal of the Washington Academy of Sciences*, Vol. 35, No. 8, August 15, 1945, pp. 237-246.

[13] "Dentinogenesis Imperfecta in a Racial Isolate with Multiple Hereditary Defects," by Rudolph J. Hursey, Jr., Carl J. Witkop, Jr., Doris Miklashek, and Lee M. Sackett, *Oral Surgery, Oral Medicine, and Oral Pathology*, Vol. 9, No. 6, pp. 641-658.

[14] *Ibid.* p. 642.

[15] Reconnaissance work in other localities, planned by Dr. Witkop and the writer, may determine whether this is true.

cies in race statistics from one census to another. In 1950, the Bureau instructed enumerators to "Report persons of mixed white, Negro, and Indian ancestry living in certain communities in the Eastern United States in terms of the name by which they are locally known."[16] Such persons were then to be classified for publication purposes among "other nonwhite races," that is, other than Negro, American Indian, Chinese, Japanese, or Filipino.

In 116 counties checked, the population of triracial character was estimated at 77,000 persons, on the basis of race entries, enumerators' notes, and through the use of extensive surname data on the groups assembled from a variety of sources. Of this number, 33,000 were enumerated as Indian, 29,000 as white, 14,000 as Negro, and 1,000 under colloquial race names or with the race entry blank. More than 40 per cent of the total reside in North Carolina. It was not feasible to make the investigation in cities of more than 20,000 inhabitants. Undoubtedly all of the groups have made some contribution to urban migration, but it is in the native rural environment that status as a separate race or endogamous group is most common.

Relatively few instances were noted in the 1950 Census records where enumerators employed colloquial race terms, although there was an increase from previous censuses in use of "Indian" as the race name for triracial people. On reflection, it is not surprising that colloquial terms were not employed more freely by the enumerators. They exist for the great majority of the groups but are usually offensive to the people so-termed. Examples include: Croatan, Brass Ankle, Red Bone, Red Leg, Free Jack, Bushwhacker, Dominicker, Guinea, and Issue. Common politeness or self-interest may have led many enumerators to list groups as Indian or white. Field investigations by the writer and others substantiate that certain of the communities have acquired a public status as white or Indian even though they continue to be regarded informally as having some Negro ancestry. In the numerous instances where the racial status of an isolate has not been static—at least as reflected in census records—the direction of change over the years seems invariably to have gone toward a lighter classification. For example, the so-called "Melungeon" people were commonly listed as mulatto prior to the Civil War. In various censuses after the war Melungeons in many counties were classified as Indian. By 1950 all but a very few of them were listed as white and are known to be accepted officially as part of the white population in their local areas.

Fertility rates in the triracial isolates appear to be exceptionally high. Reliable inferences can be drawn on this subject for those Southern groups who were tabulated in the published reports of the 1950 Census as "other nonwhite races." This population of 33,000 includes the majority of mixed bloods who were listed as Indian or by a colloquial term in the original schedules but few who were listed as white or Negro. The ratio of children under 5 years old per 1,000 rural women 15 to 49 years old among these people was 825 (standardized for age to distribution of total United States women)."[17] This is nearly double the ratio of 417 for total women in the nation. It also exceeds the high fertility ratios of the rural Spanish-speaking population of the Southwest (755) and the Negro rural-farm population of the South (771). In fact it is the highest fertility ratio for 1950 known to the writer for any racial or ethnic group in the United States.

When translated into its potential for

[16] *Enumerator's Reference Manual, 1950 Census of the United States*, United States Department of Commerce, Washington, D. C., N. D. Page 34.

[17] All fertility ratios cited are computed from reports of the 1950 Census of Population. Statistics by age and sex for "other nonwhite races" are found in the Special Report, *Nonwhite Population by Race*, Government Printing Office, 1953, table 7. In the rural South, persons of the triracial description comprise about 97 per cent of the "other nonwhite races" population.

population growth, the fertility ratio of 825 yields an estimated generation replacement index of 259 per 100 women. In other words, under continuation of fertility and mortality conditions current in 1945-1950, the triracial population would increase by over two and one-half times in the course of each generation. Such a rapid increase is no longer containable in the rural homelands of the groups. It portends a wider distribution for them in the future and growing contacts in urban settings with people unacquainted with their curious history. In several large cities to which migration is taking place the migrant generation has tended to cluster and form a visible social group, as many immigrant peoples have done before them. However, the clannish aspect of their lives seems ultimately to weaken, and marriage outside of the group begins. Meanwhile, as definable population groups of large family size, developed from relatively few family lines, and still practicing close marriage, the triracial groups offer unusual opportunities for the study of genetic disease and factors affecting the persistence of population isolates.

REFERENCES


1. Bureau of the Census. 1950. *Enumerator's Reference Manual, 1950 Census of Population.* Washington, D. C.: Government Printing Office.
2. Bureau of the Census. 1953. Nonwhite Population by Race. 1950. *United States Census of Population* — Special Reports. Washington, D. C.: Government Printing Office.
3. Craig, H. S. 1934. *Cumberland County (New Jersey) Marriages.* Privately published.
4. Gilbert, W. H., Jr. 1945. The Wesorts of Southern Maryland: An Outcasted Group. *J. Wash. Acad. Sc.* **35**: 237-246.
5. ————. 1946. Mixed Bloods of the Upper Monongahela Valley, West Virginia. *J. Wash. Acad. Sc.* **36**: 1-13.
6. ————. 1949. Surviving Indian Groups of the Eastern United States. *The Smithsonian Report for 1948.* Washington, D. C.: Government Printing Office.
7. Hursey, R. J., Jr., Witkop, C. J., Jr., Miklasiek, Doris and Sackett, L. M. 1956. Dentinogenesis Imperfecta in a Racial Isolate with Multiple Hereditary Defects. *Oral Surg., Oral Med., and Oral Path.* **9**: 641-658.
8. Sniedcor, S. T. and Harryman, W. K. Surgical Problems in Hereditary Polydactylism and Syndactylism. 1940. *J. Med. Soc. New Jersey.* XXXVII: 443-449.
9. Weller, George. 1938. The Jackson Whites. *New Yorker.* **14**, No. 31: 29-39.
10. Weslager, C. A. 1943. *Delaware's Forgotten Folk.* Philadelphia: University of Pennsylvania Press.

TABLE I.

Estimated Population of Reputed Indian-White-Negro Racial Isolates of the Eastern United States, by State and County: 1950

| *Area and Isolate* | *Population* | *Race Designation in Census Schedules* |
|---|---|---|
| ALABAMA — *Total* | 3,300 | |
| Cajans — Total | 2,790 | |
| Mobile County | 960 | White, Negro, Indian |
| Washington County | 1,830 | Indian, Negro, Cajan, White |
| Creoles — *Total* | 440 | |
| Baldwin County | 170 | White, Negro |
| Mobile County | 270 | Creole, Negro, Indian, White |
| Melungeons | | |
| Jackson County | 70 | White |
| DELAWARE — *Total* | 530 | |
| Moors | | |
| Kent County | 130 | Moor, Negro, Indian, blank entries |
| Nanticoke-Moors | | |
| Sussex County | 400 | Indian, Negro, Moor, blank entries |
| FLORIDA — *Total* | 60 | |
| Dominickers | | |
| Holmes County | 60 | White |
| GEORGIA — *Total* | 80 | |
| Croatans — *Total* | 80 | |
| Evans County | 20 | Negro |
| Richmond County | 60 | White |
| KENTUCKY — *Total* | 7,990 | |
| Melungeons and related groups Total | 7,890 | |
| Clay County | 460 | White, Negro |
| Floyd County | 1,680 | White |
| Jackson County | 140 | White |
| Johnson County | 420 | White |
| Knott County | 2,420 | White |
| Letcher County | 1,920 | White |
| Magoffin County | 670 | White, Negro |
| Whitley County | 180 | White |
| Pea Ridge Group—*Total* | 100 | |
| Cumberland County | 70 | Negro |
| Monroe County | 30 | White |
| LOUISIANA — *Total* | 7,991 | |
| Houma Indians or Sabines—*Total* | 2,291 | |
| Lafourche Parish | 435 | Indian |
| Terrebonne Parish | 1,856 | Indian |
| Red Bones — *Total* | 5,170 | |
| Allen Parish | 1,270 | White |
| Beauregard Parish | 370 | White, Negro |
| Calcasieu Parish | 950 | White, Negro |
| Evangeline Parish | 210 | White |
| Rapides Parish | 1,050 | White |
| Vernon Parish | 1,320 | White |
| Other isolates | | |
| Natchitoches Parish | 200 | Negro, Indian, White, blank entries |
| Rapides Parish | 90 | Indian |
| St. Landry Parish | 240 | Negro |
| MARYLAND — *Total* | 3,090 | |
| Croatans | | |
| St. Marys County | 20 | Indian, White |
| Guineas | | |
| Garrett County | 20 | White |

TABLE 1.—Continued

Estimated Population of Reputed Indian-White-Negro Racial Isolates of the Eastern United States, by State and County: 1950

| *Area and Isolate* | *Population* | *Race Designation in Census Schedules* |
|---|---|---|
| Wesorts — Total | 3,050* | |
| Charles County | 1,570 | Negro |
| Prince Georges County | 1,480 | Negro |
| MISSISSIPPI — *Total* | 470 | |
| Creoles | | |
| Jackson County | 470 | White, Negro, Indian |
| NEW JERSEY — *Total* | 810 | |
| Gouldtown Group | (NA) | |
| Cumberland County | (NA) | Negro |
| Salem County | (NA) | Negro |
| Jackson Whites — *Total* | 810 | |
| Bergen County | 370 | Negro, White |
| Passaic County | 440 | Negro, White |
| NEW YORK — *Total* | 570 | |
| Bushwhackers | | |
| Columbia County | 100 | White |
| Jackson Whites — *Total* | 470 | |
| Orange County | 60 | Negro, White |
| Rockland County | 410 | Negro, White, Indian |
| NORTH CAROLINA — *Total* | 32,712 | |
| Cubans or Person County Indians | | |
| Person County | 196 | Indian |
| Halifax and Warren County Indians | | |
| *Total* | 3,689 | |
| Halifax County | 2,860 | Negro, Indian |
| Nash County | 14 | Indian |
| Warren County | 815 | Indian |
| Lumbee Indians or Croatans | | |
| Total | 26,677 | |
| Bladen County | 160 | Negro, Indian |
| Columbus County | 468 | Indian |
| Cumberland County | 439 | Indian |
| Harnett County | 402 | Indian |
| Hoke County | 764 | Indian |
| Robeson County | 22,553 | Indian |
| Sampson County | 786 | Indian |
| Scotland County | 1,075 | Indian |
| Wayne County | 30 | Indian, Negro |
| Portuguese | | |
| Northampton County | 320 | Negro, Portuguese, Other, White |
| Other isolates | | |
| Rockingham County | 200 | White, Indian, Negro |
| Stokes County | 1,070 | White, Negro |
| Surry County | 560 | White, Negro |
| OHIO — *Total* | 2,200 | |
| Carmel Indians — *Total* | 450 | |
| Champaign County | 60 | White, Negro |
| Hardin County | 260 | White, Indian, Negro |
| Highland County | 130 | White |
| Guineas — *Total* | 1,430 | |
| Athens County | 330 | Negro, White |
| Morgan County | 260 | Negro, White |
| Muskingum County | 410 | Negro, White, Indian |
| Washington County | 430 | Negro, White |

* A subsequent field survey by Witkop and associates shows this number to be low by at least 1,000.
NA—Not available.

TABLE 1.—Continued
Estimated Population of Reputed Indian-White-Negro Racial Isolates of the Eastern United States, by State and County: 1950

| *Area and Isolate* | *Population* | *Race Designation in Census Schedules* |
|---|---|---|
| Other isolates | | |
| Darke County | 130 | Negro |
| Vinton County | 190 | White, Negro |
| PENNSYLVANIA — *Total* | 560 | |
| Keating Mountain Group — *Total* | 100 | |
| Centre County | 10 | Negro, White |
| Clearfield County | 30 | White |
| Clinton County | 60 | White |
| Pools | | |
| Bradford County | 460 | White |
| SOUTH CAROLINA — *Total* | 3,204 | |
| Brass Ankles and related groups *Total* | 2,320 | |
| Berkeley County | 550 | White, Filipino |
| Charleston County | 70 | White, Filipino |
| Clarendon County | 20 | Negro |
| Colleton County | 130 | Negro, White |
| Dorchester County | 420 | White, Negro |
| Orangeburg County | 880 | Negro, White |
| Richland County | 240 | Negro, White |
| Williamsburg County | 10 | Blank entries |
| Lumbee Indians or Croatans *Total* | 604 | |
| Dillon County | 250 | Indian |
| Marion County | 114 | Indian |
| Marlboro County | 240 | Indian |
| Turks | | |
| Sumter County | 280 | Turk, White, Negro |
| TENNESSEE — *Total* | 4,430 | |
| Melungeons and related groups *Total* | 4,430 | |
| Bledsoe County | 50 | White |
| Campbell County | 970 | White, Negro, Indian |
| Cannon County | 40 | White |
| Claiborne County | 630 | White, Negro |
| Davidson County | 40 | White |
| Grainger County | 330 | White, Negro |
| Grundy County | 40 | White |
| Hamilton County | 60 | White |
| Hancock County | 1,320 | White |
| Hawkins County | 570 | White, Negro |
| Marion County | 80 | White |
| Morgan County | 10 | Negro, White |
| Rhea County | 120 | White |
| Roane County | 150 | Negro |
| Stewart County | 20 | White, Indian |
| VIRGINIA — *Total* | 7,050 | |
| Adamstown Indians or Upper Mattaponi | | |
| King William County | 130 | Indian, White, Negro |
| Brown People — *Total* | 710 | |
| Amherst County | 150 | Negro, White, blank entries, Indian |
| Rockbridge County | 560 | White |
| Chickahominy Indians — *Total* | 820 | |
| Charles City County | 690 | Negro, Indian, White |
| James City County | 30 | Negro |
| New Kent County | 100 | Indian, Negro, White |

TABLE 1.—Continued

Estimated Population of Reputed Indian-White-Negro Racial Isolates of the Eastern United States, by State and County: 1950

| *Area and Isolate* | *Population* | *Race Designation in Census Schedules* |
|---|---|---|
| Cubans | | |
| Halifax County | 210 | Indian, White, Negro |
| Issues | | |
| Amherst County | 300 | Negro, White, blank entries |
| Melungeons or Ramps — *Total* | 3,120 | |
| Lee County | 1,520 | White |
| Scott County | 450 | White |
| Wise County | 1,150 | White |
| Potomac Indians — *Total* | 230 | |
| King George County | 40 | White |
| Stafford County | 190 | White |
| Rappahannock Indians — *Total* | 430 | |
| Caroline County | 320 | Negro, Indian, White |
| Essex County | 20 | Negro |
| King and Queen County | 90 | Negro, Indian, White |
| Other isolates | | |
| Patrick County | 1,100 | White, Negro |
| WEST VIRGINIA — *Total* | 1,650 | |
| Guineas — *Total* | 1,650 | |
| Barbour County | 1,040 | Negro, White, blank entries |
| Taylor County | 610 | Negro, White |
| SEVENTEEN STATES — *Total* | 74,697 | |

N*95: Estimates derived from inspection of 1950 Population Census records, but except for those groups listed solely as Indian do not in any sense represent official statistics of the Bureau of the Census. Some small or ill-defined groups could not be evaluated. Surname and location data generously supplied by Brewton Berry, William H. Gilbert, Jr., and Edward T. Price were of material aid in preparing the population estimates.

# BLOOD GROUPS AND DISEASE

## A Promising Field of Medical Research

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The possibility that an individual's blood group might render him particularly liable to certain common diseases has been causing much interest lately. Hitherto most doctors have been concerned with blood groups only because of their nuisance value when giving blood transfusions and their responsibility for haemolytic disease of the newborn. The influence of blood groups on other diseases is now being investigated by research teams in many parts of the world, and a number of reports have been published.

One reason why these reports have created such interest in the profession is that they may open up a whole new field of preventive medicine. It is significant that, when, in 1954, the Royal Society of Medicine arranged its first meeting in London to discuss this subject, that meeting was held under the auspices of the Section of Epidemiology. Since the introduction of hygiene laws, vaccines and antibiotics, the infectious diseases have become much less of a problem and the Public Health doctor is now turning his attention to such diseases as coronary thrombosis, cancer, diabetes and duodenal ulcer. It is likely that all these conditions are caused by the action of environmental factors such as smoking, diet or nervous strain acting on individuals who have inherited a constitutional susceptibility. It would be extremely difficult to protect the whole community from all such factors, but if the inherited predisposition to a disease could be detected in a child, steps could be taken to prevent at least that child from coming into contact with those factors which would be particularly dangerous to it. It will probably be many years before these objectives of the research are reached. The present stage of the work can be likened to that phase in the prevention and treatment of the infectious diseases when it was first discovered that there were such things as bacteria.

If the nature of an inherited susceptibility can be elucidated, we may expect that this knowledge will throw light on the underlying pathogenesis of the disease itself. Doctors concerned with patients with these diseases are, therefore, watching the results of such investigations with interest, in the hope that new lines of treatment will be opened. In fact, the first applications of the new knowledge may well be in the range of curative medicine rather than in preventive medicine.

### Blood Groups

Although we have known about genes for over 50 years, man has been a difficult animal to study genetically as so many of his characters are due to the action of several genes. Apart from abnormalities, almost the only genes that we can test for with certainty are those which cause antigens to appear on red blood cells. These antigens we call blood groups and we know of 9 blood group systems, each located, as far as we can tell, on different chromosomes. The best known of these systems is the ABO, and the work with which this survey is concerned has been directed to studying whether people with the different ABO blood groups differ in their liability to develop certain diseases.

**Early Research**

The ABO blood groups were discovered in 1900, and from time to time since then doctors have studied a group of patients with a disease to see if their blood groups differed from those of normal people. They usually came to no definite conclusion, either because the number of patients was too small, or they had not an adequate control group of normal people with which to compare the results, or, if they had controls, the mathematical techniques used were inadequate for true statistical evaluation. These early investigators also made the mistake of lumping together patients suffering from more than one disease; this is a mistake that is probably still being made and is very difficult to avoid. What we know as duodenal ulcer, diabetes mellitus or coronary thrombosis may very well be made up of two or more different diseases, but a worker in this field can subdivide only according to the present state of medical knowledge. It is important, for this reason, that those collecting such data should be doctors with considerable experience of the conditions under investigation.

For all these reasons work in this field was unproductive up to World War II, and it had almost ceased during the first seven post-war years. This was in spite of the fact that the geneticists, Sir Ronald Fisher and Dr. E. B. Ford, had demonstrated mathematically that the blood group genes were not neutral as regards survival value, each gene, as regards natural selection, having advantages and disadvantages which balance each other. Their work had not, however, reached many of the doctors who had access to patients.

**Recent Work**

Research into the relationship of blood groups and disease received its first major stimulus when, in 1953, the results were published of a survey of cancer of the stomach in Great Britain; great care had been taken with control groups, and a first-class statistical analysis had been made. It had been known for a long time that both group O and cancer of the stomach were more common in the North than in the South of England. Professor Ian Aird of the Postgraduate Medical School, London University, thought that there might be a connection between them, and he and his colleagues collected data from seven different cities. The figures were analyzed by Dr. J. A. Fraser Roberts, and they were surprised when it was found that in each of these cities there were more blood group A individuals in the cancer series than in the control series. The results were statistically highly significant, and it appeared that blood group A people were 25 per cent more likely to develop cancer of the stomach than were people of groups B, AB or O. The importance of their finding was increased by the inclusion in their report of data from Switzerland showing the same excess of group A in a large series of cancer of stomach patients in that country.

This work of Aird and his colleagues can be regarded as the first firmly established association between a blood group and a disease. Because of its bearing on natural selection it excited geneticists even more than medical men, and it was largely at their instigation that many doctors in Europe and America started similar surveys. Since then, the best work has been carried out by teams which include doctors, geneticists and statisticians. Biochemists and serologists are also now joining the teams.

The results obtained so far with various diseases will now be summarized:

1. *Cancer.* Aird's finding of an association between blood group A and stomach cancer has been confirmed in other countries of Europe as well as in America and Australia.

Cancer of organs other than the stomach has been investigated but no definite association has been found; these include lung, colon, breast and uterus. In leukemia also

there does not appear to be an association with any of the ABO groups.

2. *Duodenal and Gastric Ulcer.* In 1954, Aird and his colleagues followed up their report on stomach cancer with the results of an investigation of patients with peptic ulcer. This condition they found to be associated with blood group O, and the correlation was even stronger than that between stomach cancer and group A. It applied particularly to duodenal ulcer though it was also present in the gastric ulcer patients of their series. The marked association between group O and duodenal ulcer has been found with great consistency by workers in many parts of the world, not only in many European countries and in America and Australia but also among Chinese in Hong Kong. From the analysis of these series it would appear that a person of blood group O is about 40 per cent more likely to develop a duodenal ulcer than is someone of groups A, B or AB.

There has not been such unanimous agreement with regard to gastric ulcer as there has been with duodenal ulcer. The majority of series collected, however, have shown a slight but significant association with group O. The cause of the differing results may be that there are several types of stomach ulcer and only one type is associated with group O; different series of patients containing different proportions of this type would therefore show varying degrees of the association. Taken as a whole, however, it would appear that gastric ulcer is about 25 per cent commoner in those of group O.

3. *Pernicious Anemia.* Both in Great Britain and in Iowa it has been found that there is quite a marked association between pernicious anemia and blood group A.

4. *Diabetes Mellitus.* Several series of patients with diabetes mellitus have been investigated. There have been some differences in the results, but it seems likely that these patients have an increased incidence of group A.

5. *Pituitary Tumors.* Professor Ernst Mayr of Harvard University has found a marked excess of group O with a certain type of pituitary tumor in a small series of patients from hospitals in Boston and New York. Though analysis of the figures shows that the excess is statistically significant, he only regards the finding as tentative and it is being checked by further series of patients elsewhere.

6. *Cirrhosis of the Liver.* Dr. B. P. Billington of Sydney University has found a highly significant association between liver fibrosis and group A. Here also the series of patients is small and the finding should only be regarded as tentative until confirmed by a similar finding elsewhere.

7. *Pneumonia.* To these diseases investigated since 1953, one association reported in 1951 should be added. Dr. D. Struthers found in Glasgow a very strong suggestion that babies of blood group A were more liable to die of pneumonia than were group O babies. No one has been able to establish this association more firmly as so few babies now die of pneumonia.

8. *No Association* with the ABO blood groups has been found in such diseases and conditions as bronchiectasis, asthma, thyrotoxicosis, aphthous ulcers, parodontal disease, ulcerative colitis and rheumatic fever. No doubt further investigations will lead to the establishment of more associations between blood group systems (including those other than the ABO) and diseases other than those already mentioned.

**Summary of Associations Found**

The most marked association with the ABO blood groups which has been found is that with duodenal ulcer. The association with cancer of the stomach and pernicious anemia can also be accepted as well established. There is almost certainly an association with some type of gastric ulcer and probably with diabetes.

**Are These Associations Fortuitous?**

The fact that an association is found between a blood group and a disease does

not necessarily mean that there is any causal connection between them. For example, if we studied the cosmopolitan population of a European or American city we might find a higher increase of blood group B in those with dark hair than those with fair hair, because group B is much commoner in Asia than in Europe. No one would suggest that group B causes dark hair. A correlation between the two characters would be found, simply because of a racial group living within the general population but not mating at random with it. Except in the smallest human populations, marriages tend to be within racial, religious or social strata. Is it likely that the associations discovered between blood groups and disease are due to there being in the general population a racial strain, which is, for example, more prone to develop duodenal ulcer and, incidentally, has a higher incidence of blood group O than the rest of the population? The answer to this question is that it is very unlikely indeed as the correlation has been found in so many different countries and in Negroes and Mongols as well as Caucasians.

The possibility of an association being due to racial stratification would be ruled out if it were shown that, within families, members with one blood group are more prone to the disease than are their brothers or sisters with one of the other blood groups. The association of blood group O and duodenal ulcer has been investigated in this way in Liverpool by Dr. C. A. Clarke and his colleagues. Surprisingly enough they have found that, within ulcer families, those affected are no more likely to be group O than are their unaffected brothers and sisters. At present it is difficult to know the meaning of this result; it does not necessarily mean that the association found within the general population is due to an incidental racial association, but it does mean that, if there is a casual relationship between group O and ulcer, it must not be of a simple nature.

**How Could These Associations be Working?**

It may not be a coincidence that most of the diseases in which a relationship with the ABO blood groups has been found are diseases of the digestive system. This suggests that the ABO genes may be concerned in its development or functioning. In most people the digestive secretions such as saliva and gastric juice contain very large amounts of the ABO blood group antigens, and these people are called secretors. About 25 per cent of people, however, do not have these antigens in their body fluids but only on their cells, and they are called non-secretors. Secretion and non-secretion are inherited characters.

Dr. C. A. Clark and his colleagues have studied 900 duodenal ulcer patients and found them to be about 35 per cent non-secretors—a very highly significant excess over the 25 per cent of the controls. They have found this association between non-secretion and ulcer also within families, a non-secretor being more liable to develop an ulcer than are his secretor brothers and sisters. This is further evidence against the associations with the blood groups being fortuitous, and it suggests that they may be due to the different antigens giving different degrees of protection against the stresses which cause diseases of the stomach and duodenum. It is still too early, however, for us to give a definite answer on the mechanism of the associations.

**How Will This Research Progress?**

It is probable that the easiest part of this research is now completed: finding out if there are associations by studying the case records of patients who have been blood grouped because they were going to have an operation. The discovery of further associations necessitates the blood grouping of patients with diseases not treated surgically, and this is now being done in several centers. More arduous and time consuming is the work which will have to be done to reveal the mechanisms by which the blood groups influence liability to disease.

In human genetics it is usual for several genes to work together to produce an effect. It is therefore probable that the inherited liability to develop a disease is dependent on the interaction of several genes. That this is so in the case of duodenal ulcer is suggested by the latest data from the Liverpool family investigation which demonstrate that the association with group O may apply only in those families containing both secretor and non-secretor individuals. It thus appears that two of the genes concerned in the inheritance of this disease may have been revealed. Other genes will have to be studied to see if they too are involved. As the human geneticists develop more and more techniques for the genetic study of man, doctors will be waiting to apply them to the study of the inheritance of disease.

# HEREDITY COUNSELING
## Genetic Clinics and Their Preventive Medical Implications

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THE FUTURE OF MEDICINE LIES in the treatment of accidents: either accidents due to trauma or accidents due to inheritance. If this is true, or even partly true, the knowledge of how to prevent or modify these accidents is a necessary goal. Human genetics has in the past been an ugly stepchild of medicine. Many people think of it as a study of people with six fingers or two heads. The general public has little knowledge of the part it plays in heart disease, cancer, diabetes, allergy and a host of other conditions. Frequently not much more is known by the general physician. To the breeder of fine cattle, the attitude of the medical profession in this respect must seem foolhardy. Research in genetics will enable us to learn what diseases are hereditary, methods of their transmission and the detection of carriers. Only through genetic counseling can this knowledge be exploited.

What is genetic counseling? Who should be the counselor? In what environment can it best exist? It is almost necessary to answer these questions in reverse order from which they are asked, because for counseling service to be effective it must have a number of disciplines readily available and the individuals representing these disciplines must not only know the genetic implications of their discipline but must also be able to work with the similarly oriented individual of another discipline.

Since there is probably no perfect heredity clinic, it gives the author a chance to describe his concept of a perfect one.

Such an institute of human genetics would cut across departmental boundaries within a medical center, and even across college boundaries in the university. It would be physically located in the medical center for a number of reasons, the chief one being that a large percentage of the material going through it would be detected there. By this I mean that the lead subject, or a large percentage of lead subjects, would be detected in the hospital. This type of lead subject is known, technically, as a "propositus"; and from him an investigation is made backwards to the parents and grandparents, forward to the children and grandchildren, sideways to the siblings, aunt and uncles. Also there are certain facilities available in a medical center that would not have to be duplicated, were the institute located there. This location would also be ideal from a teaching point of view. Residents in medicine (and, I should hope, pediatrics and obstetrics and gynecology) could be rotated through it as part of their basic house staff training. Some, if not all, residents from otolaryngology and ophthalmology should also have some experience here, as well as other specialties. Ideally, undergraduate students would have at least two experiences in the clinic the way most curricula are set up at present. If, however, the trend towards a vertical curriculum persists, such an institute would lend itself wonderfully to a continuing experience.

The members of the institute would give basic indoctrination lectures in the subject to both undergraduate and postgraduate medical students. There would always be a need for some didactic work, but more emphasis would be placed on case work and counseling, with special emphasis on the genetic aspect of any case or family the student might be assigned.

Physical facilities would consist of outpatient space that could handle five to ten interviews per day. Considering the amount of time necessary for a genetic work-up, this would include about four combination office and examining rooms, one treatment room, a waiting room and a director's office. There would be in-patient research facilities consisting of two male and two female beds.

Permanent personnel would consist of a director who should be an M.D. His training would be broad and, I believe, an internist with a deep interest in genetics would best fill this position. In addition, there would be a Ph.D. geneticist either as co-director or associate director. His professorial title would be in the Department of Zoology so that he would not lose liaison with his own group in the field of non-human experimental genetics.

There would also be a statistician, with his title in the Department of Bio-statistics, but spending at least eighty-five per cent of his time in the genetic institute. The remainder of the time would be spent in maintaining liaison with the Department of Bio-statistics. Many other disciplines would be represented, or at least available on call, such as anthropology, social service, etc.

There would be one full-time or three-quarter-time physician at the level of assistant or associate professor, who would not only act with the director and others in advising on research problems but would also act as part of the counseling team. He, too, would maintain close contact with his basic clinical discipline.

It is not anticipated that the basic budget would maintain any specific research projects, as these would be supported by other funds and with additional personnel as the need arose, or the opportunity for such research was visualized. The institute would serve as a framework and a nucleus to coordinate such research, maintain a central repository for pedigrees and advise groups planning research. It would give genetic counseling as this became necessary to those individuals affected by this research and to those members of the community referred to it.

An institute such as I have described would also be active in, and at the disposal of, non-medical groups. Its personnel would be not only available but also anxious to participate in non-medical group activities, such as the Parent-Teachers Association, church leagues, etc. In fact, it appears to me that a large part of their time would be spent in direct contact with lay groups in an educational and/or preventive fashion. This impact would not be local but, through regional hospital programs, would make its influence felt over several states.

Now that we have established the environment and described the counselors, we are prepared to explain what genetic counseling is. It might be easier first to say exactly what counseling is not. Counseling is not birth control. Counseling is not planned parenthood. Counseling does not run at cross currents to any religious sect or creed with which the author is familiar.

For a positive definition of counseling I prefer the second definition given in Webster's dictionary which states that counseling is: "interchange of opinions; mutual advising; deliberation together; consultation." Genetic counseling, then, means that personnel representing the various disciplines in the genetic institute confer with the person or persons concerned and share their knowledge, so that a decision may be arrived at in the light of the best available information.

At the end of the counseling period, the person or persons who have come to the clinic would be in a better position to make up their own minds regarding their problem. To illustrate some of the everyday problems that come up in genetic clinics, it seemed desirable to actually take the reader through an established heredity counseling service.

The Department of Human Genetics* at

the University of Michigan Medical School was selected for several reasons. First, it is the oldest and one of the most active such clinics in the United States. Its Director is a personal friend and, for a time, I was associated with the group.

Figure 1 shows three young people talking. Their problem, however, is quite different from that of most young people. The married couple has had one child, a Mongolian idiot. They have been well-advised by their family physician and have placed the child in a mental institution, but they would like to know the probability of another child being afflicted in the same manner. Not only had they no knowledge of previous Mongolism in either family, but they have been rather proud of the scholastic achievements of their families and the birth of a Mongolian idiot has shaken them considerably. The geneticist has assured them that the probability of a second misfortune occurring is not likely, but that it has been shown that the older the mother the higher the percentage of Mongolism and, since they are young, it is probably wise to complete their family while the mother is young. He cannot explain the occurrence of the Mongoloid child as well as he can many other inherited traits, but he can explain to them that it is probably due not only to a familial predisposition but also to some unknown metabolic circumstance in the pregnancy which is not likely to occur again.

Figure 2 illustrates an entirely different problem. The child on the examining table is illegitimate, and it is known that his parents are of different races. Is this child to be raised and brought up with a Negro family? Or is he to be raised as a white child? Here we see the social worker, two physical anthropologists and a physician. Through physical measurement, blood type, etc., they will be able to guide the social worker.

Another problem that constantly presents itself in genetic counseling clinics is the question of paternity. Testimony can be given as to the possibility or impossibility of paternity, based on studies of the blood types, which is now accepted in our courts.

In Figure 3 on the left we see a hematologist determining blood types that may or may not establish whether a child kidnapped ten years ago has been found or not. Probably less well known are newer techniques that are constantly being used in genetic studies to enable geneticists to be more and more sure of such problems.

Figure 3 on the right illustrates a young lady using one of the newer research approaches to the same problem. She is setting up a series of starch column electrophoretic analyses which will add additional data in attempting to determine the paternity of the child.

It would be impossible in such a short discussion to illustrate all the activities of a genetic clinic. The above illustrations have been chosen to give the reader some idea of the divergence of the clinic's daily activities and also to tell why so many disciplines must be represented and why an efficient counseling service can only exist in an environment of research. There are all too many problems that arise in which the geneticist can be of little help, but they are far fewer than was the case several years ago. There is probably no metabolic disease which has been studied from a genetic standpoint but that some genetic implication has been found. When one knows the mode of inheritance of a disease and is able to detect its carriers, the next step is to be alert to the possibility of the disease appearing in children of the carriers. It is not too much to expect that many of the metabolic disorders which we see today as catastrophic episodes in a person's life will be anticipated early and, through precautionary measures, either prevented entirely or treated at their onset and modified to such an extent that they will not seriously interfere with the person's way of life.

It has been implied all through this dis-

*Organized as the Heredity Clinic in 1940.

FIGURE 1.

FIGURE 2.

FIGURE 3

cussion that the best genetic counseling can be done in a genetic institute. One might well ask why the family physician cannot offer this service and advice. We have tried to show that genetic counseling does not depend on one service only but requires the interplay of many disciplines. Only through constant investigation by a well-trained and multi-disciplinary group can progress be made in human genetics.

There are still relatively few medical schools where human genetics is taught and fewer that have the facilities to give proper counseling. Just as the family physician refers patients to a skilled neurosurgeon for the removal of a brain tumor, he will utilize the services of a genetic clinic if it is available. It is true that many genetic problems can be answered today without such recourse, and, as human genetics progresses through research, many more will become second nature to the family physician. However, one would hesitate to predict that the services of the counseling clinic will ever be superfluous, for the more that is learned through research, the more questions will present themselves for consideration. The complexion of the practice of medicine is clearly changing, and during the next several decades it seems almost certain that the emphasis of medical practice will be upon metabolic disorders. Through the cooperation of the basic scientist, clinician and the geneticist we can expect progress, and through counseling services we can make this progress available to those who need it.

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# PATTERNS OF DISCOVERY IN MENTAL DEFICIENCY*

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SCIENCE CANNOT BE understood in terms of any one method, and advances therefore deserve to be studied for their pattern as well as for their content. In genetic research on mental deficiency, patterns may be discerned at three levels. First, the genetic mechanisms are of four general types and determine four major patterns of research. Each of these will be illustrated here with a specific type of mental defect. Second, for each specific defect, past research follows lines which cut off or open up avenues of future exploration. Third, because genetics is in part an exact, in part a natural science, individual discoveries in mental deficiency illustrate the multiplicity of scientific methods: simple description, deduction, induction and intuition. Furthermore, the large dependence of practical developments on theoretical advances is repeatedly demonstrated in this field.

Research in mongolism illustrates the first major pattern, characterizing those defects in which heredity plays a subtle role or none at all. These offer the greatest challenge to genetic theory and method. The history of mongolism, in particular, presents a pattern of contradictory observations and false hypotheses that should make all students wary. Apparently a unitary disease, it seemed at the turn of the century to have several different causes. Abnormalities of gestation, widely reported, were often too late to fit embryological theory, and the apparent importance of high maternal age was challenged by countless exceptions. When evidence for heredity began to accumulate, this too contradicted itself. Beginning with Jenkins (3) in 1933, theories developed a sophistication that made them stable or stubborn in the face of such recent findings as mongolism in two of three babies born to mongoloid mothers (7), mongolism in both of opposite-sex twins, and mongolism in one of monozygotic twins. An undercurrent of genetic research has now culminated in a discovery and hypothesis by Penrose (5) that may again be tangential or may be the long-sought key.

Phenylketonuria is a rare, severe form of mental deficiency associated with urinary excretion of phenylpyruvic acid. It typifies the inborn errors of metabolism, and its specific historical pattern shows scientific exploration at its best (4). At the lowest pattern level, the fruitfulness of the original chemical discovery in 1934 is an instructive contrast to the sterility of an earlier pedigree description of a family now known to have had phenylketonuria. In two decades following discovery of the laboratory test for this disease, the chemical deviations were enumerated, the fundamental error identified, and a rational therapy found. Not satisfied with this knowledge, geneticists have pressed on and devised a reliable test for heterozygous carriers (2). Among avenues thereby opened for future work is direct examination of the alleged role of the phenylketonuria gene in other mental disorders.

The third major research pattern involves the familial anatomical diseases. As

*Condensed from a paper read at a Symposium on Progress in Genetic Psychiatry given by the Eastern Psychiatric Research Association, New York City, October 12, 1957.

an example, Recklinghausen's neurofibromatosis is characterized by skin tumors and may be accompanied by mental deficiency. Though it was one of the earliest diseases to be identified as a Mendelian dominant, the pathogenesis of neurofibromatosis in biochemical terms is not yet even surmised. Genetic interest in such diseases has necessarily been epidemiologic. The numerous sporadic cases were early cited as evidence of mutation in man, but variable expression confused the picture. Two recent monographs have made neurofibromatosis one of the best known diseases in population genetics . The model study by Crowe *et al.* (1) established the frequency of the disease, its virtually complete penetrance, and its mutation rate. Combining clinical and genetic acuity, these authors also detected four cases that fulfilled the criteria of somatic mutation (gene change restricted to part of the body) and thereby opened another line of investigation.

Quantitative inheritance, the fourth genetic mechanism in mental subnormality, is represented *par excellence* in the classic familial defectives, Goddard's morons. Its history illustrates the pre-Mendelian roots of genetics, the need for cooperation between the behavioral and biological sciences, and the problems of scientific enquiry in emotionally charged fields. Exemplified in the Kallikaks, these patients are close to the heart of the nature-nurture controversy. Early clarification came with the gradual recognition that a family tends to propagate its own culture as well as its own heredity, and that, by assortative mating, it continually accumulates its own kind of both. Early workers demonstrated the continuous distribution of intelligence and Roberts (6) was able to fit all morons into the Gaussian curve for the general population. This tends to discount recessive heredity in high-grade defect, and to merge the etiological problems with general problems of intelligence and education.

Geneticists long ago discovered a principle that has not yet been sufficiently appreciated in connection with mental deficiency. Heredity sets no absolute limits to a person's intelligence, but determines at conception a roughly bell-shaped distribution of potentialities constituting his "reaction norm." This concept shows a reassuring convergence of genetic and behavioral thought.

SELECTED REFERENCES


1. Crowe, F. W., Schull, W. J. and Neel, J. V., *Multiple Neurofibromatosis.* Thomas, Springfield, 181 pp., 1956.
2. Hsia, D. Y., *et al.*, Detection by phenylalanine tolerance tests of heterozygous carriers of phenylketonuria. *Nature*, Lond., 178: 1239, 1956.
3. Jenkins, R. L., Etiology of mongolism. *Am. J. Dis Child.* 45: 506-519, 1933.
4. Jervis, G. A., Phenylpyruvic bligophrenia (phenylketonuria). *Genetics and the Inheritance of Integrated Neurological and Psychiatric Patterns*, Baltimore, Williams and Wilkins, pp. 259-282, 1954.
5. Penrose, L. S., Observations on the aetiology of mongolism. *Lancet*, Lond. 2: 505-509, 1954.
6. Roberts, J. A. F., The genetics of oligophrenia. *Congrès Int. Psychiat, Paris, Rapports* 6: 55-117, 1950.
7. Sawyer, G. M. and Shafter, A. J., Reproduction in a mongoloid: A follow-up. *Am. J. Ment. Defic.* 61: 793-795, 1957.

# FAMILY SIZE AND SOCIAL MOBILITY IN A CALIFORNIA SUBURB

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WESTOFF HAS PROPOSED THAT SOCIAL MOBILITY be regarded as a major determinant of deliberate restriction of fertility in modern societies, suggesting that the important socio-economic differences in fertility found in the Indianapolis Study may be "as much dependent upon the presence or absence" of social mobility at each socio-economic level as upon characteristics of the level itself.[1] Kantner and Kiser, among others, have reported that sons who have moved up in social class have fewer children than those who remained at their fathers' levels, either high or low.[2]

The social mobility hypothesis rests upon the assumption "that having children is considered inimical to social and economic ambitions.[3] Such an assumption has been called upon to explain other fertility differentials as well. Thompson, for example, ascribes rural-urban differentials to the more intense "desires to achieve and to possess" in the city, which children interfere with.[4] Bell suggests that the higher fertility of suburbs may be due to the high proportions of people in them who have "chosen familism as an important element of their life styles" rather than upward mobility.[5]

If the assumption that children interfere with getting ahead is held by potential parents, it would explain greater restriction of fertility by those who are more mobile, or wish to be.[6] But what if such people cease to believe this assumption? The purpose of this paper is to suggest that a considerable number of California suburbanites, and perhaps others, no longer consider children to be inimical to getting ahead. Data obtained in a predominantly upper-middle class California suburb in 1955 indicate that upwardly mobile men do not appear to have smaller families than non-mobile men. What is more striking, aspira-

*The opinions expressed are those of the author. The study was conducted with the aid of grants from the Committee for Research in Social Science and Stanford University while the author was a member of the Stanford faculty.

[1]Charles F. Westoff, "The Changing Focus of Differential Fertility Research: The Social Mobility Hypothesis, *"Milbank Memorial Fund Quarterly*, 31, January, 1953, pp. 31-34.

[2]See John F. Kantner and Clyde V. Kiser, "Social and Psychological Factors Affecting Fertility. XXII. The Interrelation of Fertility, Fertility Planning and Inter-generational Social Mobility, *"Milbank Memorial Fund Quarterly*, 32, January, 1954, pp. 76, 78; Jerzy Berent, "Fertility and Social Mobility, *Population Studies*, 5, March, 1952, pp. 244-260; Within an Elite Group," *Milbank Memorial Fund Quarterly*, 31, October, 1953, pp. 411-420.

[3]Westoff, *loc. cit.*

[4]Warren S. Thompson, *Population Problems*, 4th Edition, New York: McGraw-Hill, 1953, pp. 217-8.

[5]Wendell Bell, "Familism and Suburbanization: One Test of the Social Choice Hypothesis," *Rural Sociology*, 21, Sept.-Dec., 1956, pp. 276-283.

[6]Some of the effects of mobility upon the desire for children are suggested by Eliott G. Mishler and Charles F. Westoff, "A Proposal for Research on Social and Psychological Factors Affecting Fertility: Concepts and Hypotheses," *Current Research in Human Fertility*, New York: Milbank Memorial Fund, 1955, pp. 121-150.

tion for occupational advancement shows some signs of being *positively* associated with size of family. It is suggested that urbanization, prosperity, and education may have altered the processes of upward mobility in such a way that children are not now perceived as alternatives to advancement.

**Source of Data**

The respondents, household head and spouse, were selected randomly from a list of all dwellings in a semi-rural, elite community located about 45 miles from San Francisco on the Peninsula. Comparison with suburbs located between this community and San Francisco indicate that the study community was above-average in fertility ratio and average value of homes, but not extreme in either characteristic. Respondents were assigned to interviewers, who could not make replacements. A total of 143 households were interviewed, or 85 per cent of the sample. The present analysis is limited to the ever-married male heads, of which there were 123. The number of children is the number the man has ever had, no distinction being made between own and adopted children.

Men were classified as upwardly mobile if they were in white-collar occupations (sales and clerical workers or above on the Edwards' scale) and their fathers were blue-collar or farmers. All others were classified as non-mobile. They were also classified as "non-metropolitan" if they spent most of their first eighteen years in a place smaller than 100,000 population which was 45 miles or more from a city of this size. Otherwise, they were classified as "metropolitan." Finally their aspiration for occupational advancement was estimated by means of a scale, which is described below.

**Findings**

*Social mobility and rural-urban background.* Statistical tests of the data reported in Table 1 indicate that there are no significant differences in size of family between the mobile and non-mobile men. The observed differences between the two categories are not so large that they could not have arisen by chance, given the individual differences found. However, it is of interest to note that the absolute differences are in the opposite direction to those predicted by the social mobility hypothesis. It is not likely that the social mobility hypothesis would be confirmed in this population with a larger sample, although this must be considered a guess.

TABLE 1.

NUMBER OF CHILDREN BY HUSBAND'S MOBILITY AND COMMUNITY OF CHILDHOOD RESIDENCE

| | *Blue-collar* | *White-collar* | |
|---|---|---|---|
| | Non-mobile | Mobile | Non-mobile |
| Non-metropolitan: | | | |
| 0 children | 5 | 3 | 1 |
| 1 children | 3 | 3 | 6 |
| 2 children | 6 | 12 | 5 |
| 3 children | 3 | 2 | 1 |
| 4 children | — | — | — |
| 5 children | — | 1 | — |
| 6 or more | 3 | — | — |
| TOTAL | 20 | 23 | 13 |
| Mean | 2.10 | 1.65 | 1.46 |
| Metropolitan: | | | |
| 0 children | 2 | 3 | 8 |
| 1 children | 4 | 5 | 5 |
| 2 children | 7 | 6 | 12 |
| 3 children | 4 | 3 | 1 |
| 4 children | — | — | 2 |
| 5 children | — | 2 | 1 |
| 6 or more | — | 1 | 1 |
| TOTAL | 17 | 20 | 30 |
| Mean | 1.76 | 2.10 | 1.70 |

| | Degrees of freedom | Sum of squares | Mean square |
|---|---|---|---|
| Total | 122 | 255.32 | |
| Between columns | 2 | 2.22 | 1.11 |
| Between rows | 1 | 0.15 | 0.15 |
| Within cells | 119 | 252.95 | 2.13 |
| No F value greater than 1.00 | | | |

There are likewise no significant differences between the family sizes of men from metropolitan and non-metropolitan backgrounds. Among white-collar men, however, those from a metropolitan background in childhood have more children absolutely than those from a non-metropolitan background. This finding may not

be fortuitous, in view of the well-established trend toward higher fertility among upper-middle class suburbanites in the past ten years. It is worth considering the implications of the fact that this trend has coincided with the coming of age of a generation raised largely in or near the metropolis.

*Level of aspiration.* Actual mobility may not indicate the relative strength of desires for higher status or willingness to sacrifice for it. It is possible that the non-mobile men in the sample experience the pressures of mobility as acutely as the mobile men, perhaps more so. A better test of the assumption that children are viewed as inimical to advancement lies in the relationship between level of aspiration and family size.

All employed men in the sample were asked: "Suppose you were offered an opportunity to make a substantial advance in your occupation. How important would you feel the following considerations to be, if they were required in order to make the advance?" Table 2 lists the considerations presented.[7] The respondent was given a card containing the following responses. If he indicated that the consideration was "more important than any advance" he scored 1. If he said that it was "important enough to require serious weighing" or "not important at all in comparison to a substantial advance," he scored 0. Each consideration was scored in this manner except "moving away from this community." Here the responses just quoted scored 2, 1, and 0, respectively.

High scores on the scale indicate that many of the considerations would be considered more important than any advance. *High* scores thus indicate *low* levels of aspiration. Referring to Table 2, it is worth noting that few of the men have low levels of aspiration: less than one-fifth of them would regard a new routine, more responsibility, or loss of contact with friends as definitely more important to them than a substantial advance; while most of them would balk only at moving around the country a lot or leaving the community. This high average level of aspiration, together with the few "large" families, is exactly what one would predict from the assumption that children are regarded as a handicap to advancement.

When we look at the differences in family size in relation to levels of aspiration, however, it does not seem safe to assume that children are seen to interfere with advancement. According to Table 3, white-collar men with more children have higher levels of aspiration. This finding merits attention, despite the statistical insignifi-

Table 2.

LEVEL OF ASPIRATION SCALE.

*Item*s

"How important would you feel the following considerations to be, if they were required in order to make a substantial advance:

1. Work out a new routine?
2. Take on more responsibility?
3. Lose contact with all of your present friends?
4. Leave your family for six months?
5. Move around the country a lot?
6. Move away from this community?

| | Scale score* | Item: 1 | 2 | 3 | 4 | 5 | 6 | Number of cases |
|---|---|---|---|---|---|---|---|---|
| Low aspiration | 7 | 1 | 1 | 1 | 1 | 1 | 2 | 8 |
| | 6 | 0 | 1 | 1 | 1 | 1 | 2 | 5 |
| | 5 | 0 | 0 | 1 | 1 | 1 | 2 | 4 |
| | 4 | 0 | 0 | 0 | 1 | 1 | 2 | 10 |
| | 3 | 0 | 0 | 0 | 1 | 1 | 1 | 19 |
| | 2 | 0 | 0 | 0 | 0 | 1 | 1 | 25 |
| High aspiration | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 20 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| | | | | | | | | 104 |
| Errors: | | 7 | 6 | 6 | 15 | 11 | 11 | 56 |

Coefficient of Reproducibility: .91
Coefficient of Scalability: .69**

*For explanation see text.

**As defined by Herbert Menzel, "A New Coefficient for Scalogram Analysis," *Public Opinion Quarterly*, 17 September, 1953, pp. 268-280.

[7]The items for this scale were taken from Leonard Reissman's study in Evanston, Illinois. See "Levels of Aspiration and Social Class," *American Sociological Review*, 18, June, 1953, pp. 233-242. Only those eight items were used which distinguished upper-middle class men from those of lower status and which Reissman regards as realistic requirements for upward mobility. Of those tried, two had to be dropped because they yielded too many errors in the scale. These were: "endanger your health" and "give us what leisure time you now have."

cance of the differences, because of the regularity of the differences, even when rural-urban background is controlled.

TABLE 3.
HUSBAND'S LEVEL OF ASPIRATION SCORE BY NUMBER OF CHILDREN AND COMMUNITY OF CHILDHOOD RESIDENCE*

| | Number of children: 0 | 1 | 2 or more |
|---|---|---|---|
| Non-metropolitan: | | | |
| 0 | 1 | 1 | 2 |
| 1 | – | 1 | 2 |
| 2 | – | 2 | 7 |
| 3 | 1 | 2 | 3 |
| 4 | 1 | 1 | 3 |
| 5 | – | – | – |
| 6 | – | – | 1 |
| 7 | 1 | 1 | 1 |
| TOTAL | 4 | 8 | 19 |
| Mean | 3.50 | 2.75 | 2.63 |
| Metropolitan: | | | |
| 0 | – | 1 | 4 |
| 1 | 3 | 2 | 8 |
| 2 | 1 | 3 | 6 |
| 3 | 1 | 1 | 3 |
| 4 | 1 | 2 | 2 |
| 5 | – | 1 | – |
| 6 | 2 | – | 1 |
| 7 | – | – | – |
| TOTAL | 8 | 10 | 24 |
| Mean | 3.00 | 2.40 | 1.79 |

| | Degrees of freedom | Sum of squares | Mean square |
|---|---|---|---|
| Total | 72 | 237.84 | |
| Between columns | 2 | 9.87 | 4.93 |
| Between rows | 1 | 6.59 | 6.59 |
| Within cells | 69 | 221.38 | 3.21 |

Fcol/cells = 1.54 p greater than .10
Frow/cells = 2.05 p greater than .10

*White-collar employed men only.

Rural-urban background shows some association with level of aspiration among these white-collar families. Metropolitan men do seem to have "greater desires to achieve and possess," as Thompson assumed. But they also tend to have slightly more children, as noted previously. All of these findings are internally consistent, even though not statistically significant. On what theoretical grounds might one expect a positive association between metropolitan background, level of aspiration, and size of family? Some hints are supplied by a consideration of attitudes about income and family size which emerged in the interviews.

*Income.* The data presented in Table 4 suggest that income and number of children may be associated differently for metropolitan and non-metropolitan men. Among white-collar men from non-metropolitan communities, those with a single child appear to have higher incomes than those with two or more children. But among comparable men from metropolitan communities, the greater the number of children, the higher the income. Objectively, children and higher income appear to be alternatives for the non-metropolitan men but not for the metropolitan men.

TABLE 4.
TOTAL FAMILY INCOME BY NUMBER OF CHILDREN AND HUSBAND'S COMMUNITY OF CHILDHOOD RESIDENCE.*

| | Number of children: 0 | 1 | 2 or more |
|---|---|---|---|
| Non-metropolitan: | | | |
| 25,000 or more | – | – | – |
| 15,000-24,999 | – | 3 | 3 |
| 10,000-14,999 | 2 | 2 | 6 |
| 6,000- 9,999 | – | 1 | 7 |
| 3,000- 5,999 | 1 | 2 | 2 |
| less than 3,000 | – | – | – |
| TOTAL | 3 | 8 | 18 |
| Mean | 9800 | 12800 | 11100 |
| Metropolitan: | | | |
| 25,000 or more | 1 | – | – |
| 15,000-24,999 | – | 1 | 6 |
| 10,000-14,999 | 1 | 3 | 6 |
| 6,000- 9,999 | 5 | 5 | 9 |
| 3,000- 5,999 | – | 1 | 3 |
| less than 3,000 | 1 | – | – |
| TOTAL | 8 | 10 | 24 |
| Mean | 9900 | 10200 | 11700 |

*White-collar employed men only.

A similar difference appeared in the attitudes of younger and older men. When asked: "What do you think is the ideal number of children in a family?" older men frequently commented that three or more seemed to be the ideal in this community, and then added that they did not see how these younger men expected to rear and educate so many children "properly" if times got hard. These comments seemed to imply an active awareness that children and income were incompatible. Such comments were rarely heard from the younger men.

Unfortunately, these comments were not

systematically sought or recorded, and so cannot be correlated with the type of community the men came from. But one could hypothesize that older men and those from non-metropolitan communities perhaps more often believe that income and children are inimical, while acting on this belief helps to produce a negative association between number of children and income.

**Conclusions**

An attempt to test the hypothesis that men who have advanced from the working class, or hope to advance beyond their present occupational position, have fewer children than non-mobile men is not supported by the evidence obtained from a random sample of 123 men living in a predominantly upper-middle class California suburb in 1955. The hypothesis is supported in only one respect: namely, that the entire sample appears to have a high level of aspiration and relatively few families of three or more children. But the upwardly mobile men do not have fewer children on the average than the non-mobile men, whether white-collar or blue-collar. And among white-collar men, those with more children have higher levels of aspiration, as measured here; although the differences are not statistically significant.

Some clues to a possible explanation of these findings are provided by certain observed differences between the men from metropolitan and non-metropolitan childhood backgrounds. It has been suggested that non-metropolitan men may have had a greater tendency to regard children as inimical to income. Why should they? Any explanation needs to account for this feeling and for the possibly lower levels of aspiration of non-metropolitan men.

One explanation may be that metropolitan men are somewhat more ready to adapt to the requirements of the urban occupational system, particularly its social mobility. It seems reasonable to assume that the type of scale used here to measure "level of aspiration" indexes not only desire for advancement but also readiness to make any adjustments which are called for. The scale score may be seen as a resultant of both forces. Looking back at Table 2, one can see that adjustments to three kinds of change are suggested: in the job and its social relations, in primary group relations, and in residence. If men who have spent most of their childhood in metropolitan communities have had more experience in adjusting to these changes successfully, they could be expected to face such changes again more readily. Men from non-metropolitan communities may lack such experience, or have found it more disturbing. This view is consistent with Lipset's finding that men who spent their childhood in larger cities are more likely than men from smaller cities and farms to be upwardly mobile within large-scale organizations, even when education is controlled.[8]

A most important reason for younger men to regard advancement as compatible with a moderate number of children lies in the conditions of advancement which they have experienced. The younger, metropolitan men of the sample more often have a college education. More of them began at well-paying jobs and were able to achieve upper-middle class status earlier, without working their way up from lowly beginnings. Above all, they have achieved thier status during a period of prosperity. For any or all of these reasons it might seem to them that children were no obstacle to a higher standard of living. It is worth noting that in the Indianapolis Study "feeling of economic security" was found to be positively associated with number of children among those generally more-successful, upper-middle class couples who practiced effective contraception.[9] According to the present interpretation this feeling of

[8]Seymour Martin Lipset, "Social Mobility and Urbanization," *Rural Sociology*, 20, Sept.-Dec., 1955, p. 223 and Tables 3, 4.

[9]Clyde V. Kiser and P. K. Whelpton, "Social and Psychological Factors Affecting Fertility. XI. The Interrelation of Fertility, Fertility Planning and Feeling of Economic Security," *Milbank Memorial Fund Quarterly*, 29, January, 1951, p. 77.

security may well be a product of greater readiness to adjust to the requirements of a job advance or other change.

This analysis suggests in conclusion that greater restriction of fertility may be seen as a consequence of individual social mobility under conditions which appear to demand greater sacrifices in return for higher status. Prosperity, higher education, and successful experience in adapting to the social mobility required by the urban occupational system all minimize the impact of social mobility, with the result that younger white-collar men from metropolitan backgrounds may no longer see children as inimical to advancement.

# A READING LIST ON EUGENICS

Eugenics covers a broad field and cuts across many areas: genetics, population, marriage counseling, psychology, medicine, and so forth. Likewise its appeal is to many groups: scientists, doctors, nurses, marriage counselors, social workers, teachers, ministers, parents. Eugenics today is concerned with encouraging couples with sound intelligence, personality, and character, who can provide wholesome home influences, to have as many children as they wish. Many factors such as the cost of bringing up children and providing for their education as well as fashions in size of family sometimes influence parents directly or indirectly to have rather fewer children than they really want. Eugenic influences begin at birth and extend to the end of life.

Eugenics seeks to integrate its position with scientific findings as they become available. Today medical genetics is especially important to eugenists because new practical application here seems to be more advanced than in many of the related fields. Heredity counseling has been established in the last fifteen years as a practical way of transmitting information to people with genetic problems. We still know very little about the inheritance of such important traits as personality and intelligence, and we don't know whether present birth rate differentials are actually dysgenic. But we do know that the quality of a population is its most important asset.

Eugenics also favors measures that may assist persons to avoid transmitting serious genetic disability to their offspring insofar as such measures are consistent with their own interests and welfare.

The following reading list has been prepared for those who want to study eugenics in general or who want to pursue a particular aspect. This list is not all-inclusive but is intended only as a useful and comprehensive reference which can be supplemented indefinitely. Many valuable references have not been included.

GORDON ALLEN, M.D.
HELEN HAMMONS
C. NASH HERNDON, M.D.
CLYDE V. KISER
FRANK LORIMER

American Eugenics Society, Inc.

## GENERAL EUGENICS

*Statement of Objects.* The Eugenics Society, London, 1950.

A discussion of the goals of the British Eugenics Society in pamphlet form.

BLACKER, C. P. *Eugenics, Galton and After.* Harvard University Press, Cambridge, Mass., 1952.

A readable introduction to eugenics by a leader in the field.

*Eugenics Quarterly.* American Eugenics Society, Inc., New York, N. Y.

Semi-technical journal on eugenics and related fields of population, family life and genetics with emphasis on medical genetics.

*Eugenics Review.* The Eugenics Society and Cassel and Co., Ltd., London.

Semi-technical quarterly journal on eugenics and related fields of population and genetics.

GALTON, FRANCIS. *Hereditary Genius.* Watts and Co., London, 1950.

A new edition of classic studies by the founder of eugenics of families in which exceptional ability has appeared.

————. *Inquiries Into Human Faculty and Its Development.* The Eugenics Society and J. M. Dent and Sons, London, 1951.

A new edition of a classic study of hered-

itary characteristics with emphasis on moral and intellectual faculties.

OSBORN, FREDERICK. *Preface to Eugenics.* Harper and Brothers, New York, N. Y., 1951.

Revised edition of a readable introduction to eugenics.

WILLIAMS, GLANVILLE. *The Sanctity of Life and the Criminal Law.* Alfred A. Knopf, New York, N. Y., 1957.

Semi-popular examination by a jurist of our attitudes toward birth control, sterilization, artificial insemination, abortion, suicide, and euthanasia.

GENETICS

*Acta Genetica et Statistica Medica.* S. Karger, Basel.

Quarterly of very technical genetic and statistical studies.

*Acta Geneticae Medicae et Gemellologiae.* Gregor Mendel Institute of Medical Genetics and Twin Research, Rome.

Quarterly of technical twin studies written in the language of the contributors.

*American Journal of Human Genetics.* American Society of Human Genetics and Williams and Wilkins Co., Baltimore, Md.

Quarterly of technical research studies with annual bibliography of current periodical publications in human genetics.

*Annals of Human Genetics.* Cambridge University Press, London.

Quarterly journal of very technical research studies.

AUERBACH, CHARLOTTE. *Genetics in the Atomic Age.* Essential Books, Fair Lawn, N. J., 1956.

A short, popularly written book on mutation and its connection with radiation and nuclear fission.

COOK, ROBERT C. *Human Fertility.* William Sloane Associates, New York, N. Y., 1951.

A popular discussion of population trends including dysgenic influences in the modern world.

CROW, JAMES F. *Effects of Radiation and Fallout.* Public Affairs Pamphlet No. 256. Public Affairs Committee, New York, N. Y., 1957.

A short and simply written discussion of the genetic effects of radiation and fallout.

DOBZHANSKY, THEODOSIUS. *Biological Basis of Human Freedom.* John Wiley and Sons, Inc., New York, N. Y., 1956.

A brief, semi-popular discussion of evolution from the newer genetic viewpoint.

WORLD HEALTH ORGANIZATION. *Effect of Radiation on Human Heredity.* Geneva, 1957.

Technical report of a study group convened by WHO together with individual papers by group members. Suggests lines of research.

FULLER, JOHN L. *Nature and Nurture: A Modern Synthesis.* Doubleday Papers in Psychology. Doubleday and Co., New York, N. Y., 1954.

A semi-popular pamphlet which surveys the implication for human affairs of present genetic knowledge and evaluates the nature-nurture problem.

*Human Biology.* Wayne University Press. Detroit, Mich.

Technical quarterly on biometrics with occasional articles on population genetics.

*Journal de Génétique Humaine.* Médécine et Hygiène, Geneva.

Technical research journal in French.

*Journal of Heredity.* American Genetic Association, Washington, D. C.

A bi-monthly emphasizing animal genetics, with material on human genetics. Lavishly illustrated.

LERNER, MICHAEL, I. *Genetic Homeostasis.* John Wiley and Sons, Inc., New York, N. Y., 1954.

A technical exposition of the role of genetic diversity in maintaining fitness in population and in indivduals.

LI, C. C. *Population Genetics.* University

of Chicago Press, Chicago, Ill., 1955.

Textbook on statistical studies of gene frequencies in populations.

NEEL, JAMES V. and SCHULL, WILLIAM J. *Human Heredity.* University of Chicago Press, Chicago, Ill., 1954.

Very mathematical textbook with illustrative material from the Heredity Clinic at the University of Michigan.

NEWMAN, HORATIO, FREEMAN, FRANK N., and HOLZINGER, KARL J. *Twins: A Study of Heredity and Environment.* The University of Chicago Press, Chicago, Ill., 1937.

A classic study of identical and fraternal twins including identicals separated in infancy.

*Proceedings of the First International Congress of Human Genetics.* S. Karger, Basel, 1957.

Papers given at the first international congress devoted entirely to human genetics held in Copenhagen, August, 1956.

RACE, R. R. and SANGER, RUTH. *Blood Groups in Man.* Blackwell Scientific Publications, Oxford, Second Edition, 1950.

A presentation of the blood groups from the genetic point of view.

REED, SHELDON. *Counseling in Medical Genetics.* Saunders and Co., Philadelphia, Pa., 1955.

A semi-popular book for the physician and general reader with easily understood case histories.

SNYDER, LAURENCE H. and DAVID, PAUL R. *The Principles of Heredity.* Heath and Co., Boston, Mass., 1957.

Fifth edition of a best-seller textbook.

SORSBY, ARNOLD (Editor). *Clinical Genetics.* Butterworth and Co., London, and C. V. Nash and Co., St. Louis, Mo., 1953.

Discussion of the medical aspects of genetic diseases by different authorities.

STERN, CURT. *Principles of Human Genetics.* W. H. Freeman and Co., San Francisco, Cal., 1949.

Basic textbook providing thorough foundation in human genetics. New edition in preparation.

*The Biological Effects of Atomic Radiation:* National Academy of Sciences and National Research Council, Washington, D. C., 1956.

Non-technical summary reports of the Committees appointed by the National Academy of Sciences to study the effects of radiation. Free.

*The Hazards to Man of Nuclear and Allied Radiations.* Medical Research Council. Her Majesty's Stationery Office, London, 1956.

A complete survey of the dangers of radiation with a discussion of probable effects of doubling the present mutation rate by a committee of British scholars.

*The Nature and Transmission of the Genetic and Cultural Characteristics of Human Populations.* Milbank Memorial Fund, New York, N. Y., 1957.

Papers presented at the 1957 Annual Conference of the Milbank Memorial Fund.

SCHEINFELD, AMRAM. *The New You and Heredity.* Lippincott and Co., Philadelphia, 1950.

A revision of the author's popularly written *You and Heredity.*

### POPULATION

BROWN, HARRISON. *The Challenge of Man's Future.* The Viking Press, Inc., New York, N. Y., 1954.

A popularly written survey of the probable alternative developments of population growth and resource consumption.

ELDRIDGE, HOPE. *Population Policies: A Survey of Recent Developments.* International Union for the Scientific Study of Population, Washington, D. C., 1954.

A survey of recent developments in some of the main areas of population policy made under the auspices of the International Union for the Scientific Study of Population and UNESCO.

GLASS, DAVID, V. and GREBENIK, E. *The Trend and Pattern of Fertility in Great Britain.* Papers of the Royal Commission on Population, Vol. VI. Her Majesty's Stationery Office, London, 1954.

A report on trends and differentials in the fertility of marriage cohorts of women based on the Family Census of 1946.

LEWIS-FANING, E. *Family Limitation and Its Influence on Human Fertility During the Past Fifty Years.* Royal Commission on Population, His Majesty's Stationery Office, London, 1949.

Report of an investigation carried out by the Council of the Royal College of Obstetricians and Gynaecologists.

LORIMER, FRANK *et al. Culture and Human Fertility.* Educational, Scientific, and Cultural Organization, Zurich, 1954.

Study of the relation of fertility to social organization for non-industrial and pre-industrial societies.

*Milbank Memorial Fund Quarterly.* Milbank Memorial Fund, New York, N. Y.

Reports of research in public health, mental health, and population.

*News of Population and Birth Control.* International Planned Parenthood Federation, London.

Short, popularly written bulletin with current items on population problems and birth control. Published ten times a year.

*Population.* Institut National D'Études Démographiques. Paris.

A quarterly with very comprehensive coverage of research on population in French, including extensive critical bibliographies.

*Population Bulletin.* Population Reference Bureau, Washington, D. C.

Popularly written, brief discussions of current population problems. Published eight times a year.

*Population Index.* Office of Population Research, Princeton University, Princeton, N. J. and Population Association of America, Inc.

Exceptionally complete quarterly listing of population materials with annotations and introductory notes on population.

*Population Studies.* The Population Investigation Committee, London School of Economics, London.

Technical journal of research studies on population issued three times a year.

THOMPSON WARREN S. *Population Problems.* McGraw-Hill Book Co., New York, N. Y. 1953.

Fourth edition of a classic textbook covering population problems.

UNITED NATIONS. *Proceedings of the World Population Conference, 1954: Summary Reports and Papers, Vols. 1-6.* Department of Economic and Social Affairs, New York, N. Y., 1955.

Brief reports by Chairmen of the Sessions (*Summary Reports*) and complete papers (Vols. 1-6) presented at the World Population Conference held in Rome, August 31-September 10, 1954.

———— *The Determinants and Consequences of Population Trends.* Department of Social Affairs, New York, N. Y., 1953.

A summary of findings on the relationship between population changes and economic and social changes.

WHELPTON, PASCAL, K. *Cohort Fertility: Native White Women in the United States.* Princeton University Press, Princeton, N. J., 1954.

A technical study of the fertility of women which employs a new method for measuring fertility.

———— and KISER, CLYDE V. (Editors). *Social and Psychological Factors Affecting Fertility.* Milbank Memorial Fund, Vol. I, 1946; Vol. II, 1950; Vol. III, 1950; Vol. IV, 1954; Vol. V (in preparation).

Reports of an investigation of social and psychological factors in fertility.

*World Population and Resources: A Report by PEP* (Political and Economic Planning), London, 1955.

Semi-popular survey of resources of world

in relation to expected growth of population over the next few decades.

PSYCHOLOGY AND THE FAMILY

BECKER, HOWARD, and HILL, REUBEN. *Family, Marriage, and Parenthood.* Heath and Co., Boston, Mass., 1955.

Second edition of a symposium on the family.

*Family Life.* American Institute of Family Relations, Los Angeles, Calif.

A short and exceptionally readable bulletin including material on heredity from time to time.

GLICK, PAUL. *American Families.* John Wiley and Sons, Inc., New York, N. Y., 1957.

One of a series of Census monographs with nation-wide information on marriage, family composition, and other important aspects of family life.

*Marriage and Family Living.* National Council on Family Relations, Minneapolis, Minn.

Technical research journal of studies on the family.

MUDD, EMILY, and KRICH, ARON (Editors). *Man and Wife: A Sourcebook on Family Attitudes, Sexual Behavior and Marriage Counseling.* W. W. Norton and Co., Inc., New York, N. Y., 1957.

Covers developmental and cultural influences on men and women in marriage and how to help develop competence in interpersonal relations.

NISBET, JOHN D. *Family Environment: A Direct Effect of Family Size on Intelligence.* The Eugenics Society and Cassel and Co. Ltd., London, 1953.

A survey of intelligence and family size.

STONE, ABRAHAM, and LEVINE, LENA. *The Premarital Consultation.* Grune and Stratton, New York, N. Y., 1956.

A practical and detailed outline for the premarital interview for physicians and professional counselors.

TERMAN, LEWIS, M. *Genetic Studies of Genius: Mental and Physical Traits of a Thousand Gifted Children.* Stanford University Press, Stanford, Cal., 1925.

A classic study of gifted children.

*The Annals of the American Academy of Political and Social Science.* "Toward Family Stability." 1950.

A series of essays on aspects of the family.

*The Trend of Scottish Intelligence: A Comparison of the 1947 and 1932 Surveys of the Intelligence of Eleven-Year-Old Pupils.* Publications of the Scottish Council for Research in Education, University of London Press, London, 1949.

Compares the two Scottish studies of intelligence of selected groups of children.

TYLER, LEONA E. *The Psychology of Individual Differences.* Appleton-Century-Crofts, Inc., New York, N. Y., 1956.

Second edition of one of the few textbooks in psychology which emphasize genetics.

# EUGENIC TRENDS AT MID-CENTURY

## A Note on Eugenics and Current Census Data

HELEN HAMMONS
American Eugenics Society

THE AVERAGE SIZE OF FAMILIES is rising in the United States. Moderate-sized families are tending to replace small ones. Childless families are decreasing. Couples are marrying younger. A larger proportion of the educated are getting married and having children. More young heads of families now have a high school education. "American Families,"[1] the new Census Bureau monograph by Paul C. Glick, Chief of the Social Statistics Division, presents these findings on American family life, based on 1940 and 1950 Census data and the annual surveys of families by the Census Bureau since 1940.

These trends in American family life are significant for eugenics. The eugenic ideal has been stated as "The Eugenic Hypothesis"[2] in the following terms: It is possible to develop in the United States a social and economic environment in which individual parents will plan and have children in numbers proportional to the ability of the parents to provide a favorable environment for child development. Such a situation would make for a eugenic selection of births because parents who provide a favorable home environment should tend on the average to possess and pass on a favorable genetic endowment.

American eugenics thus is concerned with encouraging larger families among parents of sound intelligence and character who can give their children affectionate attention. In the past, and until quite recently, better educated Americans have tended to have smaller families, the less well educated larger ones.[3] Marriage has often been delayed for those who went on to college or graduate school.[4] And the longer couples have to wait to get married, the fewer children they have by and large. These are dysgenic trends.

However, Census Bureau data since 1940 suggest that some of these non-eugenic trends are being partially reversed at least at mid-century. Apparently more people today who can provide wholesome home environments are being subjected to the social and psychological pressures which favor childbearing.

### Increase in Marriage Among the Educated

Marriage rates rose sharply in the United States between 1940 and 1950. Of particular interest has been the increase in marriage among the educated. The increase during the 1940s in the proportion married was much greater among the well educated than the poorly educated. Among persons in their early twenties in 1940, the increase during the ensuing years in the proportion married was highest among the college educated and lowest among those without high school. There has been little change in the proportion married among those with fewer than five years of schooling, the so-called functional illiterates. The largest increases in the proportion married

[1] John Wiley & Sons, Inc., New York, N. Y., 1957.
[2] Osborn, Frederick, *Preface to Eugenics*, Harper & Brothers, New York, N. Y., First edition, 1940, Revised edition, 1951.
[3] *Ibid.* p. 181
[4] *Ibid.* p. 280

—with one exception—were among college graduates and high school graduates not attending college. Among both men and women college graduates in their early twenties, the proportion married doubled during the 1940s. Among persons 30-34 years old, the gain in per cent married was larger for college graduates than for any other educational level. The gain in marriage for women here has been especially outstanding. The gap now is considerably narrowed between the proportion of college men and college women who eventually marry.

We have more per capita income in this country than ever before in history, and this current prosperity is probably one of the biggest factors in encouraging educated persons to marry in larger proportions. Bad times seem to have the effect of cutting down the marriage rate. And college-educated parents usually want to give their children extra advantages which in turn strain the family budget so that fewer children can be taken care of. Our mid-century prosperity can therefore properly be considered a big boost to the marriage market, and especially to the marriage of the educated.

### Younger Age at First Marriage

There is a definite trend toward marrying younger. In 1953 the median age at first marriage for the husband was about 23 years and for the wife about 20. The median age at marriage in the United States went down during the 1940s more than a year. This change was unusually large for a single decade, for during the entire half century before 1940 the age at first marriage of husbands declined only about two years and that of wives only about one-half year.

There was a marked increase in the birth rate in the 1940s and the early 1950s. The pattern of early marriage made parents out of several million young people who under previous conditions would have remained single and stayed at home for a longer period. The proportion of families with two or three children increased from 1940 to 1953, while the proportion of both smaller and larger families decreased. And it is possible that the next census may show some rise in the proportion of families with four or five children as couples married in the 1940s move toward completion of their families. The last child is most likely to be born during the mother's twenty-sixth or twenty-seventh year. Thus today a majority of married women conclude their childbearing while they are still relatively young.

### Younger Grandparents

Parents will be close to the half-century mark when their last child has left home today, by and large. Parents in 1890 were some six years older at this point in the family cycle. Having younger grandparents today means that they will have more energy and time to help their married children, both financially and by giving them assistance and encouragement. It has been pointed out that grandparents can play a real eugenic role by assisting their married children with their families.[5] The mid-century trend toward early marriages creates a favorable atmosphere for grandparents to perform a eugenic function.

### Eugenic Advances

We cannot test the Eugenic Hypothesis effectively until a much larger number of people are living under conditions of real freedom to have as many or as few children as they want and until a larger proportion of them are subject to the social and psychological pressures favorable to having children, but we seem to be getting away from the small family pattern which has been the fashion for so long and looking toward middle-sized families. This change has eugenic aspects. A eugenic selection of births requires that those most able to benefit from a higher education should

[5] *Ibid.* p. 267.

have the most children. Big families are not yet the fashion with the educated and with those who have the potential for benefiting from higher education, but there is definitely a trend toward moderate-sized families here.

Such trends in the direction of eugenics at mid-century give encouragement to those concerned about our most valuable asset: the quality of our population.

## *HEREDITY COUNSELING SYMPOSIUM*

*The American Eugenics Society conducted a symposium on heredity counseling at the New York Academy of Medicine Building in New York City on Friday, November first, 1957. The proceedings are to be published in full in the March* EUGENICS QUARTERLY. *The program was as follows:*

**Morning Session** **9:30 A.M.**

### GENETICS IN MEDICAL PRACTICE

**Chairman:** *John C. Bugher, M.D.*
Director, Medical Education and Public Health
The Rockefeller Foundation

The Need for Parental Counseling in Pediatrics
*Josef Warkany, M.D.*
Children's Hospital Research Foundation
University of Cincinnati

Genetics in Psychiatric Practice
*John Whittier, M.D.*
Psychology Institute, Creedmore State Hospital

Genetics and Dentistry
*Carl J. Witkop, Jr., D.D.S.*
National Institute of Dental Research

Genetics in Public Health Nursing
*Hazel R. Dyson, R.N.*
*Carl J. Witkop, Jr., D.D.S.*
*Shirley S. Butters, R.N.*
National Institute of Dental Research

Genetics in Relation to Cardio-Vascular Diseases
*Victor A. McKusick, M.D.*
Johns Hopkins Hospital

**Afternoon Session** **2:00 P.M.**

### HEREDITY COUNSELING PANEL
*(Ten-minute presentations with discussion)*

**Chairman:** *Bentley Glass, Ph.D.*
Department of Biology, Johns Hopkins University

The Structure of Heredity Counseling Services
*Lee R. Dice, Ph.D.*
Laboratory of Vertebrate Biology, University of Michigan

The Meaning of Empiric Risk Figures for Disease or Defect
*James V. Neel, M.D.*
Department of Human Genetics, University of Michigan

Procedures for Referral to Heredity Counselors
*C. Nash Herndon, M.D.*
Bowman Gray School of Medicine

Types of Problems of Heredity Counselors
*F. Clarke Fraser, M.D.*
Department of Genetics, McGill University

Types of Advice Given by Heredity Counselors
*Franz J. Kallmann, M.D.*
New York State Psychiatric Institute

*Sheldon Reed, Ph.D.*
Dight Institute for Human Genetics, University of Minnesota

**Discussants:** *Clarence P. Oliver, Ph.D.*
Department of Zoology, University of Texas

*Harold F. Falls, M.D.*
Department of Human Genetics, University of Michigan

*William J. Schull, Ph.D.*
Department of Human Genetics, University of Michigan

## ANNUAL MEETING
## American Eugenics Society

The Annual Meeting of the Ainerican Eugenics Society was held at the New York Academy of Medicine Building, Room 21, at 4:30 P.M. on November 1, 1957, following the Heredity Counseling Symposium sponsored by the Society. In the absence of the President, Dr. Harry L. Shapiro, and the Vice-President, Dr. Alan F. Guttmacher, the Secretary, Frederick Osborn, called the meeting to order. He commented on the progress of the Society in the last year as indicated by the rise in circulation of EUGENICS QUARTERLY, which now has a paid circulation of one thousand. He also mentioned that we now have two Europeans and one Canadian on the editorial board and that the overseas membership has greatly increased.

The proxies on hand totaled 134. The Class of 1959 as recommended by the Nominating Committee was voted on as a whole and passed:

Gordon Allen, M.D.
William A. M. Burden
Lee Buxton, M.D.
Montague Cobb
Robert C. Cook
Mrs. Robert Ferguson
Bentley Glass
Alan F. Guttmacher, M.D.
Clyde V. Kiser
Charles A. Lindbergh
Newton Morton
Tracy M. Sonneborn
Bruce Wallace

The proposed amendment to the By-laws to be added to Article 1, Section 2, was read and unanimously passed:

Emeritus Membership: Any person who has been a member of the Society continuously for 25 years and has retired is eligible to request emeritus membership,

which may then be granted at the discretion of the Board of Directors. Emeritus members shall pay no dues and shall have all the privileges of active membership.

In accordance with the provisions of the By-laws, the financial statement for the fiscal year of 1956 was read.

Mr. Osborn noted that the attendance at the Symposium and the importance of the papers presented indicated that the decision in favor of concentrating on medical genetics was the right choice.

Dr. Franz Kallmann suggested that the Eugenics Society should explore the possibility of a course in heredity counseling for physicians. Discussion followed. A resolution was passed that the Board of Directors of the American Eugenics Society should study the possibility of a course or courses in heredity counseling and medical genetics being made available to those interested.

The meeting was adjourned at 5:15 P.M.

Respectfully submitted,

FREDERICK OSBORN
Secretary

# BOOK REVIEWS

HUMAN BLOOD GROUPS AND INHERITANCE: Sylvia Lawler and L. J. Lawler. Harvard University Press, Cambridge, Mass., 1957,

This little book intended for the biologist and lay reader exposes them to a bird's eye view of the subject, human blood groups and their inheritance. The seven chapters—historical survey, technical procedures, the $A_1A_2BO$, Rhesus, MNSs, other blood group systems, the National Blood Transfusion Service, and blood groups and biology—are followed by a glossary of carefully selected terms used in serology and genetics.

Selected family trees are given to illustrate the inheritance of the $A_1A_2$ BO systems, MNSs, Lewis-secretion system, linkage of elliptocytosis and Rh and linkage of nail-patella syndrome.

In relating the development of the genetics of the Rh system, the authors stress the British point of view of closely linked genes as elaborated by Fisher and Race. The Wiener theory of multiple alleles is too lightly dismissed, and, in view of the as yet unsettled state of affairs, the authors might have devoted more space to the multiple allele theory and its terminology or at least referred to the fluid state of the genetics of the Rh system.

The last chapter dealing with blood groups and biology covers several broad aspects such as linkage, the distribution of blood groups in higher apes and animals, hemolytic disease in animals, the geographic distribution of blood group genes, individuality of human blood resulting from permutation and combination of a different blood group system, chimera (mixture of O and A in same individual resulting from placental anastomosis in twins), the use of blood tests in cases of disputed paternity, and in detection of blood properties in stains.

PHILIP LEVINE, M.D.
Ortho Research Foundation

SOUTHERN RACIAL PROGRESS: THE WAVERING COLOR LINE: Thomas J. Woofter. Public Affairs Press, Washington, D. C., 1957, xii, 189 pp., $3.50.

This timely work is a combination of autobiography and social history based upon more than four decades of active participation in research and social agencies dealing with race relations. It is a thought-provoking and emotion-allaying book, full of common sense and the wisdom of a reflective mind. Southern in birth, education and sympathies, the author writes as a broadly humanistic American, suspicious of false sentiments and dishonest rationalizations, preferring the facts of a changing social order to traditional preconceptions as the basis for current judgments.

He highlights the coming of Jim Crow, the lynching craze, the share-cropper-renter-mule economy and its poverty perpetuating structure, the advances in education, housing and wider employment for the Negro, the increasing cooperation of Black and White and the growing recognition that the interests of the two races are fundamentally the same. He sees the basic cause of the great improvement in race relations to have been the revolutionary population shifts. The boll weevil, aided greatly by the migration of northern capital seeking cheap labor, forced a diversification of the economy. Another unmentioned factor has been the farm price support program which has supplied much of the capital that has gone into the revolutionary mechanization of southern agriculture, thus forcing both black and white labor into the cities, north and south.

Negro advances since World War II have been immense, both materially and in expansion of areas of cooperation and mutual understanding. The author tends to view these advances with an excess of optimism: "given another ten years the

South would have made good on its commitment to equalize educational opportunity for Negroes." (p. 122) This seems doubtful, however, on his own showing of the immense gap between white and colored school conditions. That it would have occured, in spite of the Supreme Court desegregation decision, in those 150 counties where Blacks outnumber Whites is very doubtful. In view of the differences in health, home and cultural backgrounds, there is an immense difference between a few colored children in an otherwise white school and a few white children in an otherwise colored school.

The chapter on "Segregation, Voluntary and Involuntary" might well be reprinted as a tract for the times. Three kinds of segregation are distinguished: that forced by law and inviolable custom; that due to consciousness of kind, such as race; and that due to economic and social status differences. As a citizen in a democracy the Negro is entitled to all those privileges and services granted other citizens and on an equal basis. "Public contact does not necessitate private association." (p. 141). Other forms of segregation are inherent in the nature of man and society. The American "melting pot" has seen the most violent race hatreds evaporate as the children of the ignorant, unwashed, unskilled European peasant have acquired education, cleanliness, skills and social amenities. Nevertheless there is still extensive social segregation in parochial school, church, fraternal society and hence in marriage.

The Supreme Court decision has temporarily checked cooperation and increased racial opposition. Certain counties that had taken tentative steps toward integration were slapped down by state officials. Yet in visits to seven Deep South states "The opinion which was unanimously held by all those that I interviewed in 1936 was that desegregation of the schools was certain to come eventually." (p. 148) The author quotes at length the North Carolina plan whereby children will be assigned to schools by public authority, "for the best interests of the child assigned." (p. 151) He sees this as a subterfuge, though a milder word would be "accomodation"; and thinks it will be widely adopted. It seems clear that integration will be a slow process over many years, varying in speed with race proportions and cultural settings. Our national experience with the eighteenth amendment was a bitter lesson in the inability of government in a democracy to enforce a moral code not supported by community sentiment. Race riots and housing problems in the North should give pause to those who would use force to hasten unduly the desegregation movement.

The short chapter on "Racial Differenecs: Fact and Fancy" is wholly untechnical. All tests show considerable overlapping of the scores. Mental stereotypes are both cause and effect of "prejudice, discrimination and segregation." Compulsory obedience to white domination has had incalculable effects on Negro health, manners, morals, education and effort to achieve. His political and civil liberties under the Constitution have been nominal rather than real.

The eugenist will find little to criticize in this; the full realization of inherent potentials of every individual is a plank in his platform. It may be that much more amalgamation of the races is the only final solution. Otherwise the Negro must maintain a society within a society, his having lower status in all respects. Sueh blood transfusion, now proceeding slowly, may well be hastened as the Negro rises in cultural and economic attainments. The lessening of color and cultural contrasts will broaden areas of cooperation and allay antagonisms.

FRANK H. HANKINS
Smith College

GENETICS: Edgar Altenburg. New York, Holt and Co., 1957, 496 pp., $6.50.

The revised edition of Dr. Altenburg's *Genetics,* like the first, is planned to meet the needs of students in a year's course in genetics. The book, however, will appeal to a much larger group than most textbooks, since it contains an up-to-date record of remarkable achievements that will be of much interest to all who occupy themselves with the broader aspects of evolutionary change.

One general feature of genetics brought out clearly in this volume is the fact that, owing to the discovery of Mendelian heredity and its cytological basis, the subject has become to a remarkable degree an exact science; but at the same time, many of its "laws" and Mendelian ratios are characterized by exceptions to an unusual degree. On the whole, this situation seems to have been unusually fortunate because so many exceptions and difficulties have been resolved. To a large extent, this is owing to the close association between genetics and cytology, which has made possible the establishment of close correlations between genetic anomalies and specific variations of chromosome behavior.

Chromosomes vary in number by duplication, triplication, quadruplication, and halving; and there may be gains or losses of individual chromosomes or even parts of them. In the process of pairing they not only exchange parts by the process called crossing over; also pieces become broken off from one member of a pair and stuck onto a member of a different pair.

Many of these and other unusual changes which are described and figured in the text are naturally interpreted as responsible for the occurrence of the genetic changes with which they are uniformly connected. On the basis of crossing-over ratios, it is possible in favorable forms to locate the relative positions of genes in particular chromosomes and thus to make chromosome maps showing the situation of the genes for the various mutant changes in the species.

The three chapters on Mutation, The Artificial Induction of Mutation, and Mutable Genes are concerned mainly with a number of recent noteworthy advances. The first of these chapters describes the varied types of variation that, in the light of present knowledge, may be properly described as mutations. This term being defined as "any change other than one due to Mendelian segregation and recombination," six subdivisions are recognized which fall under this designation. Mere extent of modification is no longer considered as a necessary characteristic of a mutant change.

The following chapter treats of the different ways in which variation may be caused, a problem with which evolutionists had long been much concerned without making much progress toward satisfying their curiosity. Efforts were made to cause variation by X-rays and other means with some degree of success, but after Muller's production of heritable variation in the fruit fly in 1927, and the devised techniques by which mutation rates can be measured, many investigators flocked into this promising field.

Various other methods of inducing mutations are described, such as the application of radium and other forms of radiant energy, ultra-violet light, heat, chemicals including mustard gas, and combinations of different mutagenic agents. The spectacular effects of radiant energy has stimulated researchers to look to the development of modern physics for insight into just how mutant changes are brought about. One important feature of this problem is that radiant energy causes chromosomes to break apart. As Altenburg states, "This opens up tremendous possibilities in various directions. It became possible to cut up and dissect chromosomes, and test the properties of the various parts."

In general, the effect of mutagenic agents is the production of random variations. In

this, the results are much like the spontaneous mutations that occur in nature. The possibility that these mutations are also caused by radiant energy has been tested by Muller and Mott-Smith with the result that Gamma-rays which "produce about the same percentage of mutants per unit dose as do X-rays, and probably cosmic rays do also" are sufficient to cause less than 0.1 per cent of the spontaneous mutation rate. Altenburg concludes: "Factors, other than ionizing radiation, must, therefore, be causing most spontaneous mutations." There seems to be no way in which the breeder can produce the specific kinds of mutation he wants.

Ordinarily, mutations, which are not common happenings, are quite unequal in their frequency; but there is a class discussed in the chapter on mutable genes which change with remarkable readiness. Many of the variegated colors in plants are traceable to chromosome changes among which the influence of hetero-chromatin is often involved.

The chapter on The Problems of Cytological Inheritance enters a long controversial field. Certain views concerning it, as the author shows, have been pretty definitely disposed of. It is a field in which discoveries relating to the role of the cytoplasm in heredity are hardly comparable with the spectacular results obtained by the study of chromosomes. From the genetic standpoint it is relatively a *terra ignota*.

A quite unexpected field of research in genetics has recently been opened up by the discovery of sexuality in certain kinds of bacteria; and phenomena having some features in common with sexuality have been studied even in viruses. When two strains of virus enter a bacterial cell, an apparent interaction sometimes occurs in which a number of new viruses are produced having different combinations of characters unlike those of the two original types.

The chapter on Heredity and Environment is devoted chiefly to twins. Both by tabular and descriptive data, it is shown that identical twins differ less in intelligence than fraternal twins, and that identical twins reared apart differ more in intelligence tests than those reared together. Data are also adduced to show that like heredity is a common factor in the production of tuberculosis, several types of insanity, cancer, and many other pathological conditions, and it not infrequently happens that people inherit the genetic basis for a characteristic which does not appear in the absence of some environmental influence to call it forth. In the last section of the chapter, the author pays his respects to the people he calls "heredity and environmental extremists," the one holding that "all differences in mental ability are entirely hereditary," the other who say "that mental development is entirely a matter of environment."

One may be strongly persuaded in favor of either interpretation, but both extremists must be woefully ignorant of plain facts or prone to reason in a curious way. There are puzzling cases in which it is difficult to ascertain whether heredity or environment plays the stronger role in the production of certain characteristics. In such cases the comparison of identical and fraternal twins yields data of great value. In recent decades, the literature on such subjects has rapidly increased in medical science. On the average, environment may increase somewhat the resemblance of identical twins, and, in particular cases, produce marked differences. It may also be pointed out that the common uterine environment of identical twins sometimes introduces a competitive factor that is productive of various inequalities. But despite the pitfalls for the unwary, the study of twins has proved to be a valuable aid to human genetics.

In the final chapter on Evolution and Its Genetic Basis the author discusses the bearing of recent developments in genetics on

the problem of evolution. Could Darwin be brought to life, and were he able to follow the trend of thought on the various hypotheses on how evolution was brought about, he would probably derive much satisfaction in contemplating the extent to which his own views had survived in their struggles against many proposed substitutes. One particularly noteworthy feature of recent advances in genetics is their abundant confirmation of Darwin's conception of variation as essentially "fortuitous." If the progress of genetics had compelled him to abandon his adherence to Lamarckism as a minor evolutionary factor, and hence also his theory of pangenesis which was almost implicit in the traditional concept of heredity from the time of Hippocrates, there would be little in the extensive writings of Darwin that would not be congruous with the present status of genetics.

S. J. Holmes
University of California

# PERIODICAL REVIEWS

## GENETICS

**Genetic-hygienic experiences in Denmark in recent years.** Tage Kemp. *Eugenics Review* **49** (1957), pp. 11-18.

The term "genetic hygiene" appropriately describes the eugenic programs now instituted in all the Scandinavian countries. Their primary purpose is preventive medicine rather than population betterment. The slow growth of these programs is illustrated by sterilization statistics for Denmark. In the first decade, 1930-1939, sterilizations numbered about 150 annually; since 1950 the annual average has been about 540. The increase has been almost entirely in diseases other than feeblemindedness.

The author estimates that eugenic measures impose more than a 50 per cent reproductive handicap on mental defectives in Denmark. The possible value of this as a preventive measure is emphasized by a study of 352 surviving children born to defective women before their sterilization. Of these children 112, or a third, had IQ's below 75, another third had IQ's between 75 and 90, and only 5 had IQ's over 100, the normal average. Of 113 with normal intelligence, 16 were severely psychotic. However, the extent to which eugenic measures may alter the future frequency of hereditary defects can be decided only in long-term population studies.

**Discordant heart anomalies in twins.** I. A. Uchida and R. D. Rowe. *American Journal of Human Genetics* **9** (1957), pp. 133-140.

Evidence from twins indicates that most cases of congenital heart defect are due to other influences than heredity. Of 26 pairs of twins examined in Toronto because of cardiac anomalies, not one presented a defect in both partners. The series included 13 monozygotic and 13 dizygotic pairs.

*The high frequency of "discordance" in identical twins rules out as a complete cause not only heredity but also any factor in the prenatal environment that would affect both twins equally. Such factors and heredity may still be partial causes, but more important would be localized intrauterine phenomena and chance deviations of development.*

**An investigation into the genetics and racial variation of BAIB excretion.** S. M. Gartler *et al. American Journal of Human Genetics* **9** (1957), pp. 200-207.

Measurements of urinary excretion of beta-aminoisobutyric acid (BAIB) may be useful in the study of racial origins. It has been shown that some individuals excrete large amounts of this metabolic by-product and that the tendency is found in Caucasoids as a rather uncommon familial trait. The authors studied 110 Apache Indians and 247 Black Carib Negroids and found a bimodal distribution, *i.e.*, a partial separation of high and low excretors, in both populations. In the Negroids the frequency of high excretors was 39 per cent; in the Indians, a Mongoloid race, it was 59 per cent. Since a high proportion of excretors has also been found in Chinese, high frequency of this trait may be characteristic of Mongoloid races.

**The excretion of beta-aminoisobutyric acid in normal, mongoloid and non-mongoloid mentally defective children.** S. W. Wright and K. Fink. *American Journal of Mental Deficiency* **61** (1957), pp. 530-533.

About 41 per cent of mongoloid imbeciles excrete "BAIB" at a rate equalled in only six per cent of normal children and 18 per cent of other mental defectives. This was established in a series of 87 mongoloids, 40 non-mongoloid defectives, and 89 normal children. A special study of 15

families failed to show a clear familial basis for the tendency observed in their mongoloid members. It may be relevant that leukemia is frequent in mongolism and that patients with leukemia excrete large amounts of BAIB.

**The problem of complete Y-linkage in man.** Curt Stern. *American Journal of Human Genetics* **9** (1957), pp. 147-166.

Transmission of human hereditary traits on the Y-chromosome, previously assumed, is found to be unsupported by substantial evidence. Of the two human sex-chromosomes, X and Y, the Y-chromosome is found only in males, passed by fathers to all their sons and none of their daughters. Y-linkage is a rare phenomenon in experimental animals, but some sixteen traits have been said to follow this pattern of transmission in man. In some of these traits the author finds evidence contradicting Y-linkage and in others ordinary dominant inheritance is a possible alternative explanation.

The most famous case of alleged Y-linkage is the fabled line of English "porcupine men," whose skin was studded with horny knobs. Four of them in three generations toured Europe in the 18th century, and their story was magnified into a six-generation pedigree in which all males and only males were affected. Careful search of records shows that this was untrue, and that the trait could not have been Y-linked.

**Pregnancy induced in genetically sterile mice.** M. Smithberg and M. N. Runner. *Journal of Heredity* **48** (1957), pp. 97-100.

A recessive hereditary form of female sterility combined with obesity in mice can be compensated by administration of hormones. The reproductive organs of these mice ordinarily fail to mature. When four hormones were administered according to a carefully determined schedule, the animals came to sexual maturity, carried pregnancies to term, and even nursed their babies. Evidently they are genetically capable of all phases of reproduction, if the abnormality of the pituitary gland is circumvented. The possible primary effects of this gene have thus been narrowed down to a single site of action.

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## POPULATION

**Population problems — East and West.** Edited by Everett K. Wilson. *The Antioch Review* **17**, 1 (March, 1957), 3-71.

Though they are a "quiet little clan" given to "careful, antiseptic language," the demographers are people whom "in our day we cannot afford to twit" (pp. 31, 4, 3). In demonstration of the range and significance of the problems treated by this group, the editor of this symposium has drawn from their ranks three active practitioners and one self-styled ex-demographer to join him in the preparation of a set of five diverse papers embodying some research results and some interesting speculation.

In "China's population: riddle of the past, enigma of the future," Irene B. Taeuber concludes that the population figure of 600 million reported for 1953-54 by the Communist government, though of uncertain validity, must at the moment be accepted provisionally for operational and planning purposes. This implies enormous demands for food, education, and other products of the economy. Official policies favoring population control, which seemed an unlikely development in the past, are now being introduced, though ostensibly for political and social rather than economic reasons. Whether the destruction of old social institutions, for the purpose of establishing a Communist order, will make possible the unprecedentedly swift adoption of limited childbearing that is essential to optimism about the future is not clear.

Warren S. Thompson's "The population problem of India" summarizes the recent history of a second of the world's largest populations and suggests that, as a minimum, India must plan for 500 million people within 20 years, as compared with about 373 million in 1954. With due regard to the five-year plans and their emphasis on increasing output, Thompson declines to predict the winner of the race between population and production. Observing that no people seems to be peace-loving when what it considers its "vital interests" are jeopardized, he suggests the possibility, not the certainty, that continuing growth of population may render the acquisition of greater resources a "vital interest" of India, to be pursued by conquest if necessary. [Curiously, no doubt fortuitously, the exigencies of fitting together the parts of a general magazine have placed a poem entitled "A Need for Death" at the end of Thompson's paper.]

The quite different demographic situation of the United States is described in part by Ronald Freedman, who reports on some findings with respect to "The planned family and American population growth." The burden of the story is that neither childlessness nor large families, but larger small families, are the current ideal in this country. As effective family planning by one means or another becomes characteristic of the entire population, family size and spacing are likely to be quite sensitive to social changes and traditional fertility differentials to be reversed.

"Higher education and earlier parenthood: a changing cycle of family life," by Elbridge Sibley, is concerned with some of the aspects of present earlier marriage and childbearing, especially among the better educated segments of the population. Finding the effect of improved economic conditions to be the removal of obstacles to childbearing rather than a positive incentive to fertility, Sibley places considerable stress on the importance of veterans in the colleges in setting a pattern of marriage while still in school that has survived their departure. Like Freedman, he sees no decline in the importance of the family in American life. Indeed, the earlier childbearing may bring with it a strengthening rather than a weakening of the bonds between young parents and the newly created grandparents. Other possible implications are a further shift in educational emphasis from cultural to vocational subjects and increased subsidy of advanced training by public agencies and potential employers.

More socio-psychological than demographic in its concern, the final article is the editor's "Mobility and the maverick," which seeks to explain the hostility often displayed toward migrants. It is suggested that the person who moves seems to be, and is, less subject to the controls, particularly the sanctions that can be applied in situations of frequent personal interaction, by which the order necessary to perpetuation of a community's values is obtained. Hence the migrant is stronger than the host and the latter correspondingly uneasy about his presence.

It seems likely to the reviewer that those who follow the population literature regularly will not find much in the way of new facts in this symposium, but they will, along with general readers who should have their knowledge broadened, find some interesting ideas among the various theoretical and prognostic conjectures that are included.

**Differential sex mortality: a research design.** Francis C. Madigan, S.J., and Rupert B. Vance. *Social Forces* **35,** 3 (March 1957), 193-199.

**Are sex mortality differentials biologically caused?** Francis C. Madigan, S.J. *Milbank Memorial Fund Quarterly* **35,** 2 (April 1957), 202-223.

One of the best-known and most striking features of mortality patterns in America, and elsewhere, is the advantage in longevity enjoyed by women over men. Improving death rates in the last few decades, far from

eliminating this sex differential, have tended to increase it. Thus far, there has been no clear demonstration of the relative importance of biological and socio-environmental factors in producing this situation. The two articles under review describe an attempt to explore the problem by examining the mortality of men and women whose styles of living were quite similar as between the sexes. The groups studied were Brothers and Sisters of sixty Roman Catholic orders devoted to teaching. After various restrictions and eliminations were applied to the sample in order to improve its homogeneity, the data analyzed covered the experience of about 32,000 females and nearly 10,000 males during the period 1900-1954.

When the expectations of life at various ages of the Brothers and Sisters were compared with each other and with those of the general population of the United States, it developed that the standardization of the "experimental" groups for sociocultural environment did not eliminate the sex differences in mortality. Both the Brothers and the Sisters tended to have more favorable mortality than the general population of like sex, and the Sisters' advantage over the Brothers was similar to that of U.S. females over U.S. males. The chief exceptions were for Sisters aged 15-34 in the period 1900-1919, when it appears that tuberculosis was particularly severe in this group.

The results of the study are taken to indicate "(1) that biological factors are *more* important than sociocultural pressures and strains in relation to the differential sex death rates; and (2) that the greater sociocultural stresses associated with the male role in our society play only a small and unimportant part in producing the differentials between male and female death rates" (*M.M.F.Q.*, p. 209). As an explanation of the increasing mortality advantage of women, it is suggested that "greater constitutional resistance to degenerative diseases benefits women increasingly as the infectious diseases and maternal hazards come under ever greater control" (*Social Forces*, p. 199).

The import of this valuable study will become clearer, in the reviewer's opinion, if it proves possible in future work to document more precisely the reported similarity in environment between the Sisters and Brothers and to study the patterns of life followed by members of the orders before entry into the religious life. It is a comment on the efficiency of present publication procedures in the social sciences, for which the authors are not responsible, that the two articles, published almost simultaneously, would be more convenient for the reader if combined into one with the elimination of some duplication of content. A curious difference between the presentations is the variation in the text of the two main hypotheses on which the study was built. The second of the hypotheses has somewhat different meanings in the two forms in which it is stated.

**Population densities and medical disorders in Honolulu.** Robert C. Schmitt. *Hawaii Medical Journal* **16,** 4 (March-April 1957), 396-397.

The first-admissions of 968 Honolulu residents to the Territorial mental hospital during 1948-1952 were classified by census tract of residence and correlations computed among the average annual admission rate by tract and five measures of population density based on 1950 census data. The measures used were: population per net residential acre, persons per household, per cent of married couples without their own household, per cent of dwelling units in structures with five or more units, and per cent of occupied dwellings with 1.51 or more persons per room. The highest correlation was that between mental hospital admission rates and persons per net residential acre (zero-order correlation: 0.78). The strongest negative correlation with hospital rates, —0.32, was exhibited by the number of persons per household.

The author finds the intercorrelations among the five measures of density and crowding, which range from 0.55 to −0.73.

Substantively, Peterson notes that Colotedly limited scope of the investigation, he suggests that it has important implications, especially for the planning of mental hygiene measures.

**How many Coloradans?** William Petersen. *The Colorado Quarterly* 6, 1 (Summer 1957), 103-111.

This article, an abridged version of a report to the Governor of Colorado, is of interest to the non-Coloradan both for the glimpse it gives of the demographic situation in that state and, perhaps more importantly, for its comments on the general problem of forecasting state population growth.

Substantively, Peterson notes that Colorado, like the other mountain states, has increased very rapidly in population in recent years—22 per cent since 1950. Yet eight counties have lost numbers in the last six years and half of all the counties grew smaller between 1940 and 1950. Major growth has all been concentrated in the immediate vicinity of five cities, with Denver's performance particularly explosive. A striking feature of the Colorado population is its occupational distribution. With less than 20 per cent of the population in agriculture and mining combined, and the proportion in manufacturing less than half the national average, Colorado is heavily a "service industry" state, specializing in finance, trade, tourism, and federal government operations, both military and civilian.

Methodologically, Petersen contributes a summary of his analysis of the important recent population projections for Colorado, virtually all of which have been proved too low within a few years of their computation. Though migration has been one clear source of difficulty for the projections, high fertility has been the main problem. There appears to have come into being a "pride in progency" factor in family decision making. Unfortunately, Petersen points out, naming the factor does not decrease existing ignorance of what it is that determines the choice of family size.

Though the reviewer finds the treatment of demographic thinking of the 1930's (p. 108) perhaps too over-simplified, he would tend to agree with the author's judgment that the uncertainties involved in population projection for states are at the moment so severe as to raise doubt about the value of elaborate calculations.

**Why the guesses go haywire.** *Business Week* 1455 (July 20, 1957), 82-94.

Two dimensions of uncertainty are emphasized in this review of findings with respect to the future growth of world population. The first is demographic and arises from disagreements as to the amount of growth to be expected. The second is economic, reflecting differences of opinion as to whether rapid or slow growth is preferable. Combination of these factors results in the specification of "the four opposing positions held by the experts": Population will continue to grow rapidly, or slowly; and either of these contingencies is good, or bad.

Under the heading "The Forecasting Muddle," the article describes briefly three techniques for making forecasts, the "historical," the "statistical," and the "mathematical," and points out some of the sources of difficulty for each. A section on "Economics of Population" discusses the views of Malthus, Gunnar Myrdal, and Joseph J. Spengler, with particular attention to investment demand and effective demand.

This article furnishes for the general reader quite good insight into some of the problems in the study of future populations. Its chief drawback, in the opinion of the reviewer, is its possible implication that all four of the positions ascribed to "the experts" are at the moment of apparently equal validity for all kinds of population situation. The problems associated

with a declining rate of population growth do not lead many experts, if any, to the view that long-continued rapid growth on a world-wide basis is desirable, or even possible. Conversely, few would disagree that for the next decade or two the total population of the world will continue to grow substantially. In connection with a subject on which confident assertions are sometimes too glibly made, however, it is encouraging to note recognition that "only time will provide the answer" to the present riddles of population.

GEORGE F. MAIR
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# NEWS NOTES

### Soviet Scientific Research

Results of Soviet scientific research are now being made available in English through the recently founded Pergamon Institute, a non-profit foundation. The Institute is publishing a number of Russian journals in complete translation. It is planning a symposium for 1958 to stimulate the teaching of Russian in English-speaking institutions and to assist scientists to read Russian scientific texts. A number of important Russian books are being published in translation by the Institute which is supported by over a hundred scientists of international standing. Captain I. A. Maxwell, M.C., is Director of the Pergamon Institute, which has branches both in the United States and England.

### Genetics and Medicine

*Pediatrics*, the journal of the American Academy of Pediatrics, issued a special supplement in July 1957: A Survey of Genetics As It Applies to Problems in Medicine. Dr. Barton M. Childs and Dr. James B. Sidbury, Jr. of the Johns Hopkins University School of Medicine prepared the review article.

### Gifted Children

The National Council for Gifted Children has recently been organized in West Orange, New Jersey. The Council will undertake programs of research and advisory work in education of the gifted. The group consists of prominent educators and industrialists. Dr. Abel A. Hanson, General Secretary, Teachers College, Columbia University, has been appointed Chairman of the Board. One of the most important problems facing American education, Dr. Hanson says, is the "conservation of brains and ability."

### Heredity in Cancer

Heredity and environment both may play important roles in susceptibility to cancer of the stomach, reported Dr. Peter Gorer of Guys Hospital, London, at a conference sponsored by the New York Academy of Sciences in New York City in October. Cancer of the stomach, he said, appears to be a type of malignancy in which we find a very strong indication that susceptibility is dependent on genetic make-up. Dr. Gorer said this point of view was supported by studies of stomach in twins. The important environmental factor seems to be poverty and may stem from diet deficiency.

### Heredity in Pre-marital Counseling

"Taking Heredity into Account in Premarital Counseling" was the topic of a fall staff meeting of the American Institute of Family Relations in Los Angeles. Dr. Paul Poponoe, active in the field of eugenics for years, led the discussion.

### Alan Gregg Fund

A special fund has been established in honor of the late Dr. Alan Gregg, formerly vice-president of the Rockefeller Foundation, the National Health Council has announced. Contributions to the Alan Gregg Fund will be used to support the Council's Health Careers program which is designed to help meet the acute shortage of health personnel in the United States.

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## ERRATA

The following corrections have been made in "Inbreeding Levels in Different Countries," Newton Freire-Maia, September, 1957, EUGENICS QUARTERLY, (Vol. IV, No. 3), 127-138

p. 129, line 12, read 0.6 for 0.06

p. 131, footnote to Table 3, read 35. Aguas Buenas (N=97) for Aguas Buenas (N—97; read 37. Canovanas for Canovanas

p. 131, Table 3, column 7, read 5.43 for 55.43

p. 131, Table 4, add # to Florianópolis

p. 132, line 12, Table 6, column 8, read 0.00374 for 0.44374

p. 132, line 22, Table 6, column 7, read 2.35 for 1.35

p. 132, Table 6, add below in the respective columns:
Sub-total 3,328 0.12 4.39 0.72 1.86 7.09 0.00346

p. 135, line 14, Table 9, column 3, read In". for In" (line corresponding to 1-2)

p. 135, line 15, Table 9, column 3, read In". for In" (line corresponding to 0.5-1)

p. 135, line 17, Table 9, column 2, take out Sw (line corresponding to 0-0.1)

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---

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